

PHASE I
PRELIMINARY REVIEW

of the

NORFOLK NAVAL BASE
NORFOLK, VIRGINIA

EPA I.D. NO. VA 6170061463

Prepared for
U.S. Environmental Protection Agency
Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107

Prepared by
A.T. Kearney, Inc.
225 Reinekers Lane
Alexandria, VA 22314

EPA Contract No. 68-W9-0040
Work Assignment No. R03-14-09

July 1990

PHASE I PRELIMINARY REVIEW

Norfolk Naval Base
Norfolk, Virginia
EPA I.D. No. VA 6170061463

TABLE OF CONTENTS

I.	INTRODUCTION	I-1
II.	ENVIRONMENTAL SETTING	II-1
	Location and Surrounding Land Use	II-1
	Climate and Meteorology	II-3
	Topography, Surface Drainage and Soils	II-3
	Geology and Hydrogeology	II-4
III.	FACILITY DESCRIPTION	III-1
	General Description	III-1
	History of Ownership and Land Use	III-1
	Operations/Process Description	III-4
	Waste Generation and Management	III-6
	Regulatory History	III-17
	History of Releases	III-25
	List of Potential SWMUs and AOCs	III-29
IV.	DESCRIPTIONS OF SOLID WASTE MANAGEMENT UNITS AND OTHER AREAS OF CONCERN	IV-1
V.	REFERENCES	V-1

TABLE OF CONTENTS
(Cont'd)

ATTACHMENTS

A.	Partial List of Resident and Tenant Activities at Norfolk Naval Base	A-1
B.	Hazardous Wastes Generated at Norfolk Naval Base Identified in the October 1988 RCRA Part B Permit Application	B-1

TABLES

III-1.	Hazardous Wastes Generated at NNB in Quantities Greater than 1,000 Gallons per Year	III-8
III-2.	Summary of Industrial Waste Generation, Treatment, and Disposal	III-9
III-3.	Potentially Contaminated Sites Identified in the Initial Assessment Study	III-24
III-4.	Potential Solid Waste Management Units and Other Areas of Concern at Norfolk Naval Base	III-30
IV-1.	Analysis of Camp Allen Landfill Discharge, April 1982	IV-4
IV-2.	Container Storage Areas - RCRA	IV-11
IV-3.	Container Storage Areas - Naval Station	IV-15
IV-4.	Container Storage Areas - Naval Air Station	IV-18
IV-5.	Container Storage Areas - Naval Aviation Depot ..	IV-24
IV-6.	Container Storage Areas - HQ and Service Battalion Fleet Marine Force	IV-31
IV-7.	Container Storage Areas - Armed Forces Staff College	IV-33
IV-8.	Container Storage Areas - Fleet Training Center .	IV-35
IV-9.	Container Storage Areas - Other	IV-37
IV-10.	Tanks.....	IV-41

TABLE OF CONTENTS
(Cont'd)

FIGURES

II-1.	Location of Norfolk Naval Base and Surrounding Region in Southeast Virginia	II-2
II-2.	Geologic Plan View and Cross Section of Norfolk Naval Base, Norfolk, Virginia	II-5
II-3.	Stratigraphic and Hydrogeologic Units of Southeast Virginia	II-6
II-4.	Well Locations at Norfolk Naval Base, Norfolk, Virginia	II-8
III-1.	Site Map of Norfolk Naval Base, Norfolk, Virginia	III-2
III-2.	Hazardous Waste Management Flow Diagram	III-14

I. INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) authorize the Environmental Protection Agency (EPA) to require corrective action for releases of hazardous waste and/or hazardous constituents from solid waste management units (SWMUs) and other areas of concern (AOCs) at all operating, closed, or closing RCRA facilities. The intent of this authority is to address previously unregulated releases to air, surface water, soil, and groundwater, and from the generation of subsurface gas. The first phase of the corrective action program, as established by EPA, is performance of a RCRA Facility Assessment (RFA). The RFA includes a Preliminary Review (PR) of available and relevant documents, a Visual Site Inspection (VSI), and, if appropriate, a Sampling Visit (SV).

This report summarizes the results of the PR phase of the RFA for Norfolk Naval Base (NNB) in Norfolk, Virginia. Sources of information used to prepare this report include files from EPA Region III in Philadelphia, Pennsylvania and the Virginia Department of Waste Management (VDWM) in Richmond, Virginia. Materials reviewed included RCRA, CERCLA, Air, Water, and Groundwater files. The facility is the principal operating base of the U.S. Atlantic Fleet. It provides shore facilities and logistic support for U.S. Naval vessels and aircraft. The facility occupies 4,631 contiguous acres and includes a developed waterfront, an airfield, and support activities for equipment and personnel. A total of 133 SWMUs and two AOCs were identified as a result of this review.

This report is organized under five chapter headings and contains two attachments. Chapter II discusses the facility's location, climate, topography, geology, soils and groundwater. Chapter III describes plant activities and operational areas, history of site ownership, operations/processes, wastes handled, waste management practices, regulatory history, and history of releases. A description of the SWMUs and other AOCs identified by this study are presented in Chapter IV. References used to prepare this report are listed in Chapter V.

II. ENVIRONMENTAL SETTING

Location and Surrounding Land Use

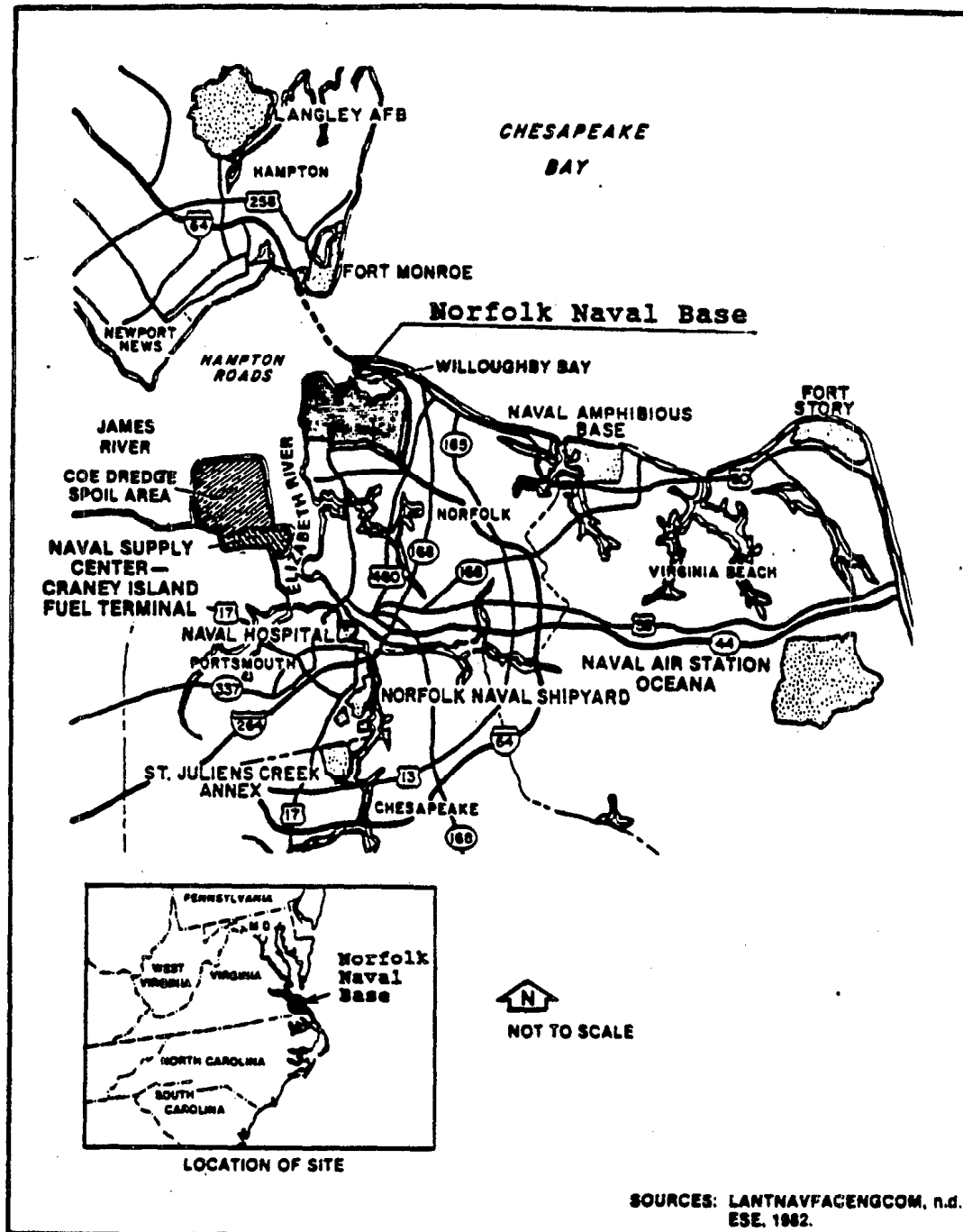
Norfolk Naval Base is located on 4,631 acres of land directly northwest of the city of Norfolk, Virginia. Figure II-1 shows the location of NNB in southeast Virginia (Reference 58). The facility is bounded on the north by Willoughby Bay, on the west by the junction of the Elizabeth River and the James River, and on the south and east by the city of Norfolk. A portion of the east boundary is formed by Mason Creek (Reference 58).

Land use surrounding NNB is predominantly industrial. The waterfront area south of the site provides shipping facilities for several large industries. According to the 1983 Initial Assessment Study (IAS), industries located in the vicinity included Exxon Corporation, Continental Grain Corporation, and the Universal Atlas Cement Division of U.S. Steel Corporation (now USX) (Reference 58). A large network of rail lines are located in the area to service NNB and these industries. Low-density residential land use is located inland from the waterfront area. Willoughby Spit, a low-density residential area located northeast of NNB, is also used for recreational activities (Reference 58).

A large concentration of military installations are located within a 25-mile radius of NNB, as shown on Figure II-1. These include Fort Monroe and Langley Air Force Base to the north, Naval Amphibious Base and Fort Story to the east, Naval Air Station Oceana to the southeast, Norfolk Naval Shipyard and St. Juliens Creek Annex to the south, and Naval Supply Center-Craney Island Fuel Terminal to the southwest (Reference 58).

FIGURE II-1

Location of Norfolk Naval Base and
Surrounding Region in Southeast Virginia
(Adapted from Reference 58)



Climate and Meteorology

The Norfolk region has a maritime climate which is characterized by long temperate summers and mild winters. The average annual temperature is 60.7 degrees Fahrenheit (F). July is the warmest month, with temperatures averaging 78.7 degrees F; while January is the coolest month, with temperatures averaging 43.1 degrees F. Freezing temperatures are infrequent in the region (Reference 34). Precipitation averages 43 inches annually and is well distributed throughout the year. A slight increase in precipitation occurs from June to August due to the prevalence of convective thunderstorms. The average annual snowfall is 8.8 inches. Winds are generally moderate and easterly (Reference 58).

Topography, Surface Drainage, and Soils

Norfolk County lies within the Coastal Plain physiographic province and is nearly level. Elevations in the county range from sea level to about 25 feet above sea level, and slopes are predominantly less than two percent (Reference 34). Surface elevations at NNB range from sea level at the north and west boundaries with Willoughby Bay and the Elizabeth River to 15 feet above sea level at the central section of the site (Reference 76). Surface water at NNB consists of Mason Creek and the remnants of Boush Creek. The main channel of Boush Creek was filled in and replaced by a network of drainage ditches during the development of NNB. The creeks discharge to the Elizabeth River or the James River, which flow to Chesapeake Bay. Due to the proximity of tidal surface waters and the low relief of the land, both Mason Creek and the remnant tributaries of Boush Creek are tidal throughout the site. Stormwater runoff from developed sections of the site is also collected by a network of inlets to underground culverts, which convey stormwater to Mason Creek or directly to the Elizabeth River or James River (Reference 58).

Although the current Flood Insurance Agency (FIA) floodplain map for the Norfolk area does not include NNB, a FIA study established that the 100-year floodplain elevation throughout the NNB and vicinity is 8.5 feet above sea level (Reference 15). This indicates that portions of the site adjacent to Willoughby Bay and the Elizabeth River are within the 100-year floodplain (Reference 76).

According to the Soil Survey of Norfolk County, Virginia, all of the soils at NNB are classified as "Urban land" (Reference 34). This classification refers to soil which has been covered by streets, parking lots, buildings, and other structures, to the extent that identification is not possible. Based on a soil association map included in the survey, it is likely that most portions of the site occurring along the rivers would be considered "Tidal marsh - Mixed alluvial land." This land type consists of a mixture of mineral soil materials which are not uniform in texture. It includes gray, dark gray to black, or dark brown clay or silty clay that is mixed with various amounts of sand. It is capped in many places with fine-textured, partly decomposed organic matter that is mixed with dense mats of roots and water grasses. Permeability is less than 2.5 inches per hour (Reference 34).

Geology and Hydrogeology

Norfolk Naval Base is underlain by over 2,000 feet of gently dipping sandy sediments, ranging in age from Recent to Lower Cretaceous. Figure II-2 provides a plan view of surficial sediments and a cross section of the upper 90 feet of sediments at NNB. Figure II-3 shows the stratigraphic and hydrogeologic units of southeast Virginia (Reference 58). The surficial sediments include sands and silts of the Sand Bridge Formation, and fill (which was not described in the available file material, but is presumed to vary in texture and composition). The Norfolk Formation underlies the Sand Bridge Formation throughout much of

FIGURE II-2

Geologic Plan View and Cross Section of
Norfolk Naval Base, Norfolk, Virginia
(Adapted from Reference 58)

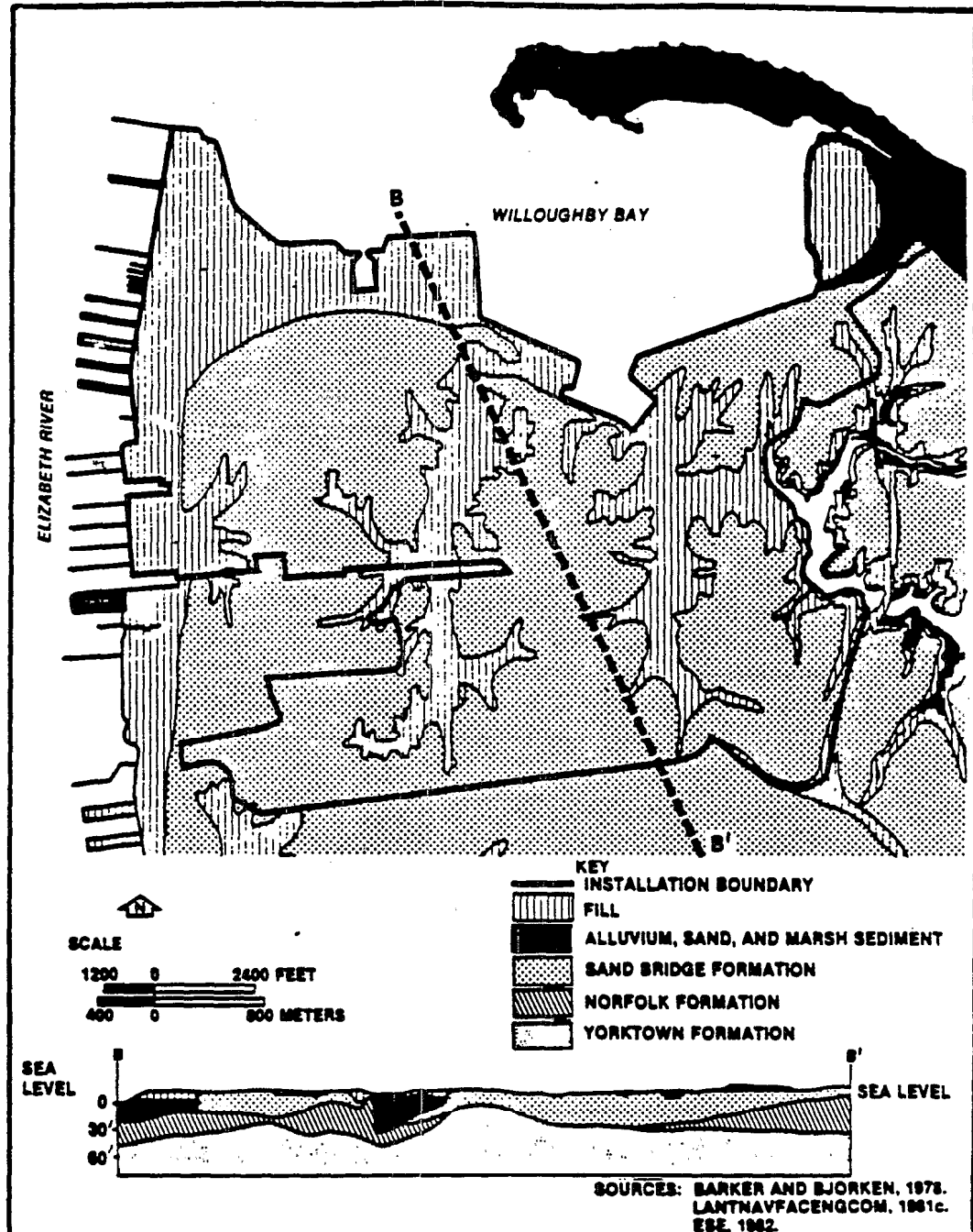


FIGURE II-3

**Stratigraphic and Hydrogeologic Units
of Southeast Virginia
(Adapted from Reference 58)**

SYSTEM	STRATIGRAPHIC UNITS		HYDROGEOLOGIC UNITS	DESCRIPTION OF HYDROGEOLOGIC UNITS
		FILL AND RECENT		
QUATERNARY	COLUMBIA GROUP	SAND BRIDGE NORFOLK	WATER TABLE OR QUATERNARY AQUIFER	UNCONSOLIDATED SAND, SILT, AND SOME GRAVEL; SAND UNITS YIELD QUANTITIES ADEQUATE FOR DOMESTIC AND SMALL INDUSTRIAL DEMANDS; USED EXTENSIVELY FOR LAWN WATERING; UNCONFINED AQUIFER
TERTIARY	CHESAPEAKE GROUP	YORKTOWN	YORKTOWN AQUIFER	SAND AND SHELL BEDS MAIN WATER-BEARING UNITS; ADEQUATE FOR MODERN PUBLIC AND INDUSTRIAL SUPPLIES; ARTESIAN AQUIFER
		CALVERT	CONFINING UNITS	SILT AND CLAY PREDOMINANT; MINOR SAND LENSES
	NANJEMOY		NOT FOUND IN STUDY AREA	
	MATTAPONI		EOCENE-UPPER CRETACEOUS AQUIFER	GLAUCONITIC SAND AND INTER-BEDDED CLAY AND SILT; INFREQUENTLY USED AS A WATER SUPPLY; YIELDS ADEQUATE FOR MODERATE SUPPLIES; BRACKISH IN MOST OF AREA; ARTESIAN AQUIFER
CRETACEOUS	LOWER CRETACEOUS	TRANSITIONAL BEDS	LOWER CRETACEOUS	INTERBEDDED GRAVEL, SAND, SILT, AND CLAY; YIELDS ARE ADEQUATE FOR LARGE INDUSTRIAL USE; BRACKISH IN MOST OF AREA; ARTESIAN AQUIFER
		PATUXENT		

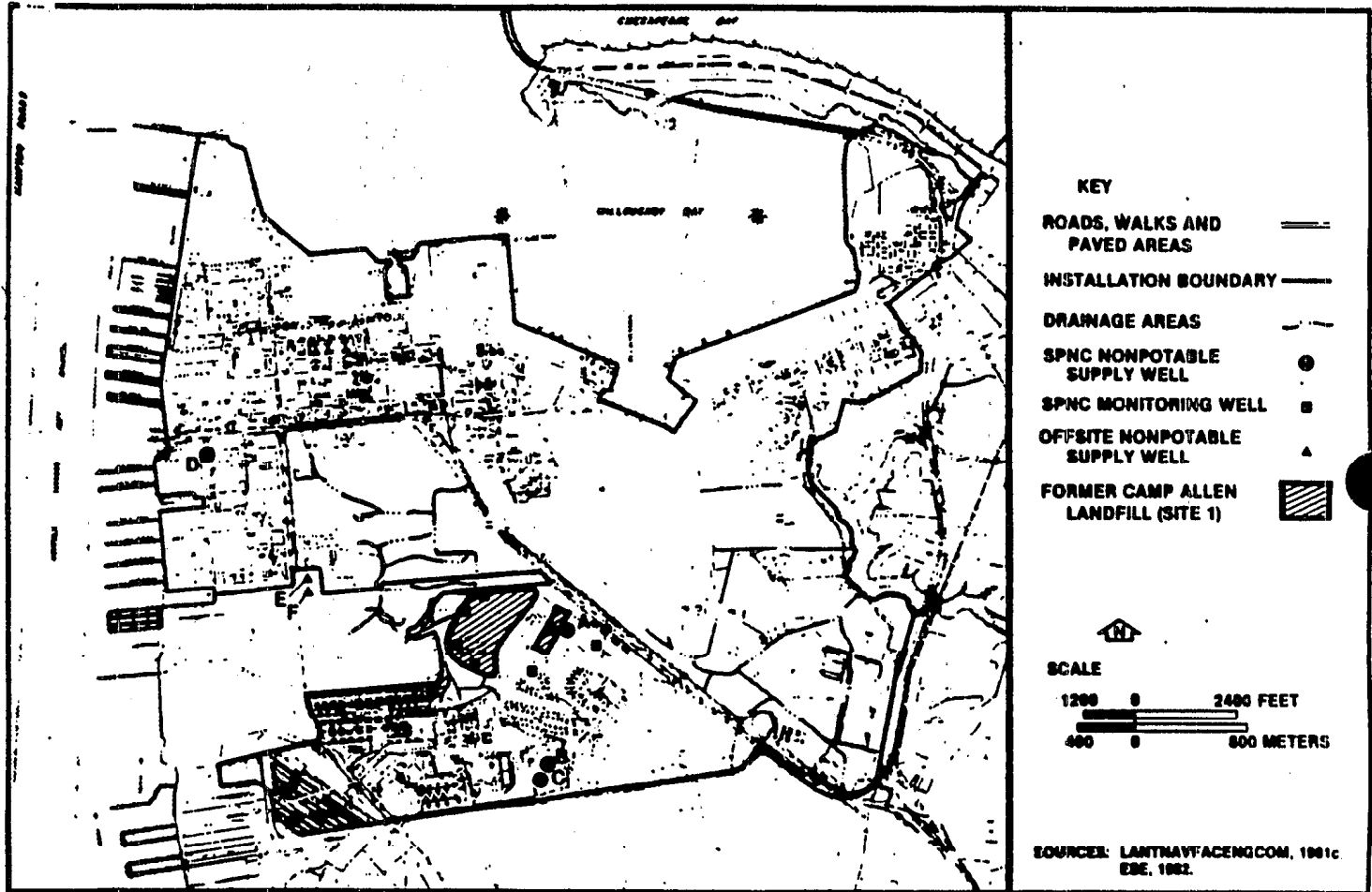
the site, although it is absent in some areas as shown in the cross section on Figure II-2. The Sand Bridge and Norfolk Formations have a combined thickness of 60 feet. The upper 20 to 40 feet consist of unconsolidated fine sands and silts with low to moderate permeabilities, and the lower 20 to 40 feet consist of relatively impermeable silt, clay, and sandy clay. The Yorktown Formation underlies the Sand Bridge and Norfolk Formations. It consists of moderately consolidated glauconitic sand, clay, and shell beds (Reference 58).

The uppermost aquifer is located in the upper 20 to 40 feet of the Sand Bridge and Norfolk Formations. The aquifer is reportedly thin, and the water-bearing strata are discontinuous. The depth to the water table is usually less than eight feet. Well yields are reportedly low, but adequate for domestic and small industrial use. It is used extensively for lawn watering in nearby residential areas (Reference 58). Flow in the uppermost aquifer is slow due to the level topography and the low to moderate permeability of the sediments. The aquifer discharges to Mason Creek, Elizabeth River, and James River (at Willoughby Bay) (Reference 58).

According to the 1983 IAS, a deeper "confined" aquifer is located in the Yorktown Formation. The lower 20 to 40 feet of the relatively impermeable silt, clay, and sandy clay of Sand Bridge and Norfolk Formations reportedly serve as an aquiclude. However, these confining beds may be absent in some areas of the site. This condition exists in the Camp Allen area, most likely due to the presence of a former channel of Boush Creek that cuts through the confining beds. In this area, contamination of the uppermost aquifer could result in pollutant migration to the deeper Yorktown Aquifer (Reference 58). Figure II-4 provides the locations of wells at NNB. Four nonpotable water supply wells

FIGURE II-4

Well Locations at Norfolk Naval Base
Norfolk, Virginia
(Adopted from Reference 58).



used for lawn watering and vehicle washing are located at NNB. The depth of these wells range from 85 to 110 feet and draw water mainly from the uppermost aquifer. Two wells located west of NNB reportedly provide about 100,000 gallons per day of process (cooling) water for a manufacturer (Reference 58). Seven monitoring wells are located in and around the former Camp Allen Landfill (IAS Site 1) (SWMU 1). These wells have periodically been used to collect ground water samples since 1974 (Reference 58).

III. FACILITY DESCRIPTION

General Description

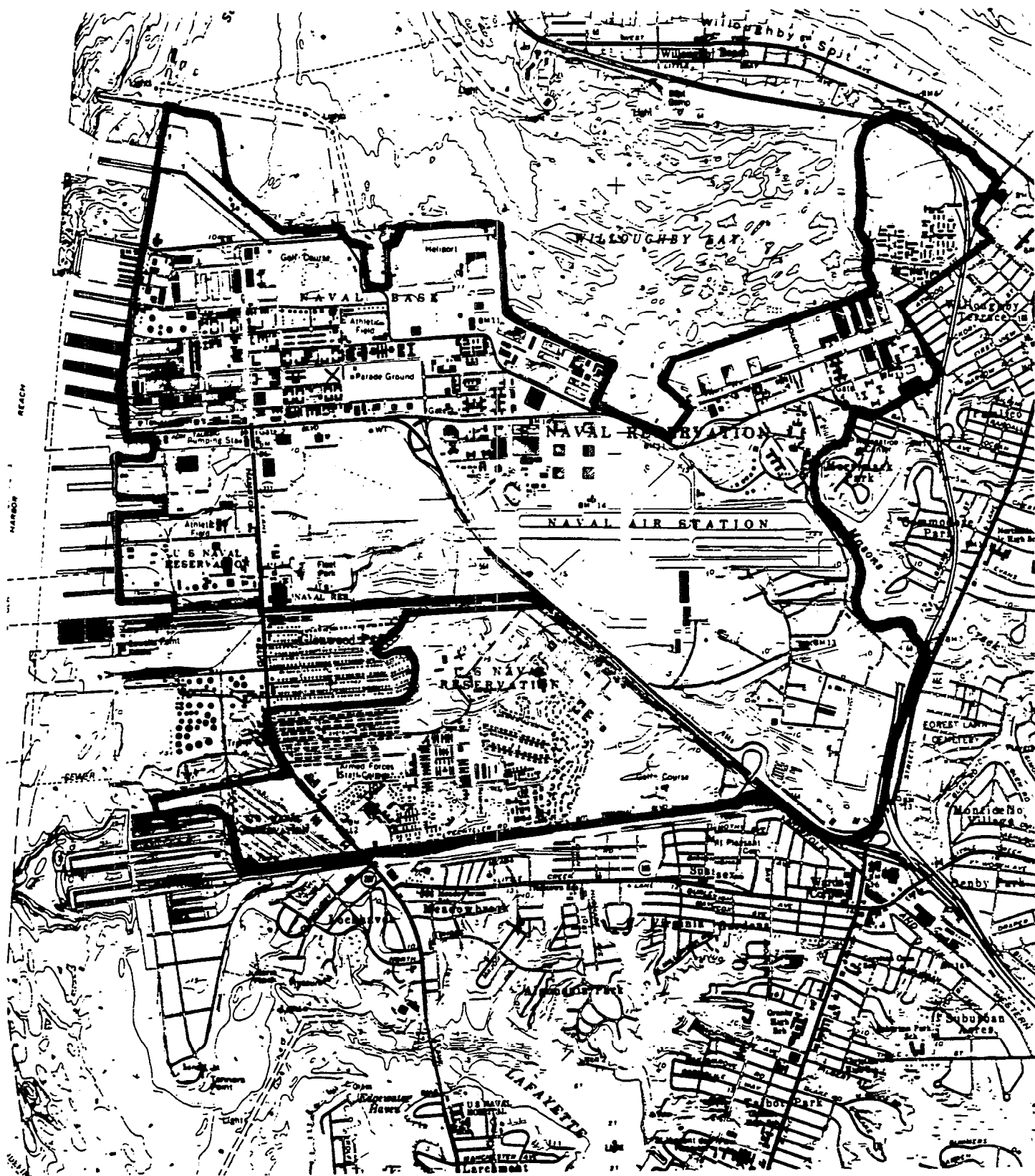
Norfolk Naval Base, the largest naval base in the United States, is reportedly located on 4,631 acres in the northwestern corner of the City of Norfolk. The facility is bounded to the north by Willoughby Bay, on the west by the Elizabeth River and on the south and east by the city of Norfolk (Reference 15). The base contains approximately 4,000 buildings and an airfield. The western portion of the base is a developed waterfront area containing railway lines and pier facilities for loading, unloading, and servicing naval vessels (Reference 58). Figure III-1 is a vicinity map of NNB.

NNB serves as the principal operating base of the U.S. Atlantic Fleet and houses most major fleet command headquarter (Reference 58). The facility's mission is to provide shore facilities and logistics support for U.S. vessels and aircraft including piers, aircraft repair, air station, training, fuel, supply, ordnance storage and other handling activities (Reference 15). These various maintenance and support activities employ about 141,000 military and civil services personnel (Reference 13). There are 227 reported tenants on the base to support activities world wide (Reference 39). A partial list of these activities appears as Attachment A (Reference 58).

History of Ownership and Land Use

Norfolk Naval Base began operations in 1917, when the U.S. Navy acquired 474 acres of somewhat developed land. Land use prior to this date is not known at the present. Until World War II, the facility site underwent some expansion with the additions to the scope of activities performed at the base. In between 1940 and 1945, major construction projects were completed including a

Vicinity Map of Norfolk Naval Base
 (Property Boundary Approximate)
 (Adapted from References 58, 76)



hospital, a powerplant, numerous runways and hangars, a tank farm, and several barracks/housing complexes. Land acquired during this period totalled over 2,100 acres.

After this period, NNB has continued to expand physically through various types of land transfers and fill operations (areas of Mason and Bousch Creek basins and Willoughby Bay). However, although the history of NNB has been one of almost continuous expansion, the overall mission of the facility has remained relatively unchanged (Reference 58).

The base command is presently comprised of several tenant activities and has grown in size since it began operating as a federal facility. The following is a summary of some of the reported tenants' operating history and land use (Reference 58).

- Hamptons Road Naval Operating Base (NOB), consisting of the naval facilities present at the time, was officially commissioned in 1917. The NOB was later reorganized to become the NAVSTA NORFOLK. NAVSTA NORFOLK provides, as appropriate, logistical support for the operating forces of the Navy and other dependent activities.
- In 1918, 143 acres of land was officially commissioned for use as an air station. Activities performed in this area were later to evolve into the current NAS NORFOLK and also represents the origin of the NAVAIREWORKFAC Norfolk. NAS NORFOLK is primarily responsible for operating and maintaining facilities and providing services and material to support operations of aviation activities and units of the operating forces.
- In 1919, the Naval Supply Station, was officially commissioned. This unit later evolved into NSC Norfolk in 1948. The unit provides supplies to the fleet and also functions as an equipment maintenance center.
- NAVAIREWORKFAC Norfolk was established in the early 1930s, to provide depot-level maintenance for the naval aircraft. It is a tenant of NAS NORFOLK.

- PWC NORFOLK, operating since 1948, provides public works, utilities, family housing, transportation support, engineering services, and shore facilities planning support. In addition, PWC NORFOLK provides all other logistic support of a public works nature required by the operating forces and dependent activities at NNB.
- SIMA Portsmouth, a tenant of NAS Norfolk, on-site since 1977, is responsible for maintenance of small boats associated with aircraft carriers, and other ships.
- FMFLANT (Camp Elmore) has been operating at this facility since the 1940s for vehicle maintenance.
- AFSC, in operation since 1963, is involved in photograph processing.
- NPPSO, a print shop, started operating in 1968.
- FTC Norfolk, a firefighting training school, was established in 1968.
- CBU-411, a construction shop, began operations in 1971.

Operations/Process Description

Norfolk Naval Base operates in various capacities to provide support to vessels, aircraft, and other activities. The command includes many tenants, each utilizing different operational procedures. The majority of the operations involve maintenance on vessels and aircraft (Reference 58).

Service and maintenance of based ships or visiting ships include defueling, refueling, utilities hookup, on board intermediate maintenance, and coordination of ship movements in the harbor. The industrial functions are unloading, offloading, and handling of fuels and oils used aboard the vessels (Reference 58).

Repair operations reportedly include paint stripping, patching, parts cleaning, repainting of fiberglass hulls, engine overhauls,

and installation of new woodwork and electronic gear. Most of this work is done outdoors. Aircraft paint stripping is performed in Building LF-53. Aircraft paint stripping consists of applying paint stripper to the aircraft, and allowing time for the paint stripper to react with the paint. The paint is then manually scraped off onto paper, which lies beneath the aircraft. When this process is finished, the aircraft is then washed and examined for erosion. Upon repainting, the aircraft is wiped with paint thinner to clean the surface (Reference 58).

Laboratory processes occur at a materials engineering laboratory (which tests plating solutions), an instrument calibration laboratory, and a nondestructive testing laboratory. The instrument calibration laboratory mission is to calibrate instruments from naval facilities on the east coast. This laboratory also contains a mercury distillation apparatus. The mercury contained in the instruments are drained into a still for refining, and then placed back into the instrument. Any wastes are hauled off-site for disposal (Reference 58).

Waste oil recovery operations reportedly include pumping oil from oil-water separators and waste oil holding tanks. The oil is pumped into a tank truck, to barges on the piers. The barges transport the waste oils to the NSC-Ci waste oil reclamation facility (Reference 58).

Wastewaters are sent to the Building LP-178/179 Industrial Wastewater Treatment Plant (SWMU 111) where they are segregated into two separate streams. The first, a cyanide stream, undergoes chlorination and pH adjustment to remove the cyanide. The second stream, chromium/phenolic, undergoes a pH adjustment and an addition of sulfur dioxide. This process reduces the hexavalent chromium to trivalent chromium. The two waste streams

are then combined for additional treatment to remove metals and phenolic compounds. The additional treatment consists of pH adjustment, clarification, addition of hydrogen peroxide, and activated carbon adsorption (Reference 58).

Additional on-site operations include sandblasting and metal plating processes (Reference 58). A comprehensive understanding of facility process operations could not be gained from review of the available file materials. Although a large number of units were identified in this preliminary review, much of the information on the receipt and disposition of wastes was either unclear or missing. Analysis of the facility's process operation was also made more difficult due to the large number of tenants located at the base, and incomplete information regarding their operations, wastes generation and disposal practices. A full determination of all the tenant and base activities with respect to waste management will be made during the site visit.

Waste Generation and Management

A variety of both hazardous and nonhazardous wastes are managed at the facility. According to the November 7, 1988 Revised Part A Application (included in the October 31, 1988 Part B Application for NNB), 165 types of hazardous wastes are generated at the facility (Reference 15). These wastes are listed in Attachment B. They include halogenated and non-halogenated solvents, corrosives, batteries (some reactive), paint wastes, wastes from electroplating operations, contaminated petroleum/oils/lubricants and off-specification, excess, or out-of-date commercial chemical products (Reference 15). The wastes are generated primarily from the operation and maintenance of aircraft, ships, watercraft, and vehicles (Reference 15).

According to the facility's 1983 Generator Annual Report, the hazardous wastes managed in the largest quantities (greater than

1,000 gallons per year) include plating waste corrosive liquids from cleaning and plating operations (D002), waste paint and thinners (D001), blasting grit (D006), and spent cyanide plating bath solution (F007, D003) (Reference 57). These wastes are listed in Table III-1. Table III-2 provides a summary of industrial waste generation, treatment, and past and current disposal methods at NNB (Reference 58).

Hazardous wastes generated at the facility are containerized and stored in (1) satellite accumulation areas located in generation shops throughout NNB; (2) less-than-90-day generator storage areas; or (3) hazardous waste management units (Reference 39). Each shop that generates a hazardous waste is provided with containers that are compatible with the types of wastes generated at that shop (Reference 15). The generating shops have the responsibility for ensuring that all hazardous wastes are placed in the appropriate containers and that the containers are properly sealed and labeled with the words "Hazardous Waste" prior to transfer to the hazardous waste container storage/transfer facilities (Reference 15).

Wastes collected in the accumulation areas are transferred to one of three RCRA-regulated interim status hazardous waste container storage areas (References 4 and 15). The hazardous waste handler inspects the containers for proper labeling and integrity prior to unloading the containers into the hazardous waste container storage areas (Reference 15). Ignitable wastes are transferred to the Building LF-38 Emergency Interim Status Hazardous Waste Container Storage Area (SWMU 8), while other types of hazardous wastes are transferred to the Building LP-159 Interim Status Hazardous Waste Container Storage Area (SWMU 7) or the Building SDA-215 Interim Status Hazardous Waste Container Storage Area (SWMU 9) (Reference 4). This latter storage area accepts waste from accumulation areas throughout NNB and serves as the final on-site storage area prior to shipment of wastes off-site to a

TABLE III - 1

Hazardous Wastes Generated at NNB in
Quantities Greater than 1,000 Gallons Per Year
(Based on 1983 volumes)
(Reference 57)

<u>Waste Description</u>	<u>Waste Code</u>	<u>Quantity</u> (gal./yr)
Waste corrosive liquids from, cleaning and plating	D002	40,270
Waste paint and thinners	D001	8,855
Blasting grit	D006	6,460
Waste corrosive liquids from plating	D002, D007	3,960
Methylene chloride	F002	3,575
Trichloroethane and perchloroethylene used in degreasing	F001	3,520
Spent cyanide plating bath solution	F007	1,705
Spent cyanide plating bath solution (sodium cyanide)	F007, D003	1,485
Xylene and toluene from paint shops	F003, F005	1,404
Waste sodium phosphate and phenol from cleaning	D002, U188	1,155
Spent cleaning bath solution	F009	1,045

TABLE III-2

Summary of Industrial Waste Generation, Treatment, and Disposal
(Reference 58)

Operation	Period of Operation	Industrial Wastes	Current Annual Waste Generation Rate	Current Treatment Method	Current Disposal Method	Past Disposal Method
NAVAIR WORKFAC NORFOLK						
Aircraft Paint Stripping	1930s to present	Paper/paint stripping residue	7,500 to 12,500 lbs	None	Salvage fuel boiler	Camp Allen landfill (site 1)
		Wash water	75,000 to 125,000 gal	IWTP	Sanitary sewer	Storm sewer/Willoughby Bay
		Waste paint stripping chemicals	5,700 gal	None	Contract hauled	Storm sewer/Willoughby Bay
Parts Cleaning		Water-based cleaning solutions	<300,000 gal	None	Contract hauled	Storm sewer/Willoughby Bay
		Various organic solvents	15,000 to 16,000 gal	None	Contract hauled	Storm sewer/Willoughby Bay
		Sludge	1,000 to 2,000 gal	None	Contract hauled	Camp Allen landfill (site 1)
Sandblasting		Cadmium-contaminated dust	29,000 to 57,000 lbs	None	Contract hauled	CD landfill (site 6) and Camp Allen landfill (site 1)
Metals Plating		Rinse water	18,200,000 gal	IWTP	Sanitary sewer	Storm sewer/Willoughby Bay
		Metal plating solutions, spent acids and caustics	17,000 gal	None	Contract hauled	Storm sewer/Willoughby Bay
		Metal plating sludges	1,000 gal	None	Contract hauled	Camp Allen landfill (site 1)
Electronic Instrument Repair		Spent solvents (1,1,1-trichloroethane, freon)	220 to 275 gal	None	Contract hauled	Sanitary sewer
		Varsol	220 to 275 gal	NA*	NA	NSC-CI†
Aircraft Testing		Waste POL	800 gal	None	NSC-CI	NSC-CI

TABLE III-2

Summary of Industrial Waste Generation, Treatment, and Disposal
(Continued, Page 2 of 4)
(Reference 58)

Operation	Period of Operation	Industrial Wastes	Current Annual Waste Generation Rate	Current Treatment Method	Current Disposal Method	Past Disposal Method
<u>PWC NORFOLK</u> <u>Painting</u>	1930s to present	Paint booth wastewater	400 gal	None	Sanitary sewer	Sanitary sewer
		Paint booth sludge	20 gal	None	Contract hauled	Camp Allen landfill (site 1)
<u>Vehicle Maintenance</u>		Spent degreasing solvent, waste oil, spent hydraulic fluid	17,000 gal	None	NSC-CI	NSC-CI
		Vehicle wash rack wastewater	<260,000 gal	Oil-water separators	Sanitary sewer	Storm sewer/Willoughby Bay
		Paint booth waste-water	800 gal	None	Sanitary sewer	Sanitary sewer
		Paint booth sludge	40 gal	None	Contract hauled	Camp Allen landfill (site 1)
<u>NAS NORFOLK</u> <u>AIMD Maintenance of Aircraft</u>	1930s to present	Spent degreasing solvent, waste oil, and spent hydraulic fluid	2,500 to 2,700 gal	None	NSC-CI	NSC-CI
		Paint booth waste-water	100 to 200 gal	None	Sanitary sewer	Sanitary sewer
		Paint booth sludge	5 to 10 gal	None	Contract hauled	Camp Allen landfill (site 1)
<u>Squadrons Maintenance of Aircraft</u>		Waste oil, spent hydraulic fluid	500 to 3,000 gal	None	NSC-CI	NSC-CI
<u>NSC NORFOLK</u> <u>Vehicle Maintenance</u>	1930s to present	Waste oil, spent degreasing solvent	200 gal	None	NSC-CI	NSC-CI

TABLE III-2
Summary of Industrial Waste Generation, Treatment, and Disposal
 (Continued, Page 3 of 4)
 (Reference 58)

Operation	Period of Operation	Industrial Wastes	Current Annual Waste Generation Rate	Current Treatment Method	Current Disposal Method	Past Disposal Method
NSC NORFOLK (continued)						
Printing		Spent photographic developing solutions	160 gal	None	Sanitary sewer	Sanitary sewer
		Spent solvents, waste ink	300 gal	None	Sanitary sewer	Salvage fuel boiler
SIMA NORFOLK Ship Maintenance	1940s to present	Carbon remover, spent solvent	550 gal	None	Contract hauled	Storm sewer/Elizabeth River
		Waste oil	300 to 400 gal	None	NSO-CI	Contract hauled
SIMA PORTSMOUTH Boat Maintenance	1974 to present	Spent degreasing solvent	600 gal	None	Contract hauled	NSO-CI
		Waste oil	300 gal	None	NSO-CI	NSO-CI
		Oily wastewater	<240 gal	None	Storm sewer/Willoughby Bay	Storm sewer/Willoughby Bay
		Paint and fiberglass dust	60 to 120 lbs	None	Contract hauled	Washed into storm sewer/Willoughby Bay
		Waste paint thinner	60 gal	None	Contract hauled	Contract hauled
FMFLANT (CAMP ELMORE) Vehicle Maintenance	1940s to present	Waste oil, degreasing solvent	100 to 200 gal	None	NSO-CI	NSO-CI
AFSC Photograph Processing	Early 1960s to present	Spent photographic developing solution	20 gal	None	Sanitary sewer	Sanitary sewer
		Spent hypo solution containing silver	100 to 150 gal	None	Hauled off-site for silver recovery	Hauled offsite for silver recovery

TABLE III-2
Summary of Industrial Waste Generation, Treatment, and Disposal
 (Continued, Page 4 of 4)
(Reference 58)

Operation	Period of Operation	Industrial Wastes	Current Annual Waste Generation Rate	Current Treatment Method	Current Disposal Method	Past Disposal Method
<u>NPPSO</u> Printing	1940s to present	Spent photographic developing solutions containing silver	<2,000 gal	Silver recovery	Sanitary sewer	Sanitary sewer with no silver recovery
<u>FIC NORFOLK</u> Firefighting Training	1942 to present	Waste POL	50,000 gal	Oil-water separator	NSO-CI	NSO-CI
		ORA canisters	13,000	None	Contract hauled	Sold
		ORA caustic rinse-water	11,400 gal	None	Contract hauled	NA
<u>CBU-411</u> Maintenance of Construction Equipment and Vehicles	1971 to present	Waste oil Degreasing solvent	840 gal 120 gal	None None	NSO-CI Contract hauled	NSO-CI Contract hauled
<u>CINCLANTFLT</u> Photograph Processing	1940s to present	Spent photographic developing solutions	300 gal	None	Hauled off-site for silver recovery	Hauled offsite for silver recovery

* NA = Not applicable.

† NSO-CI = Naval Supply Center-Craney Island waste oil reclamation facility.

Source: ESE, 1982.

treatment, storage or disposal facility (Reference 4).

The Building SDA-215 Interim Status Hazardous Waste Container Storage Area (SWMU 9) is managed by PWC, which also serves as the hazardous waste transporter for all military facilities within a 50-mile radius (References 4 and 13). Upon receipt of hazardous waste from a generating shop, the following information is entered into the operating log.

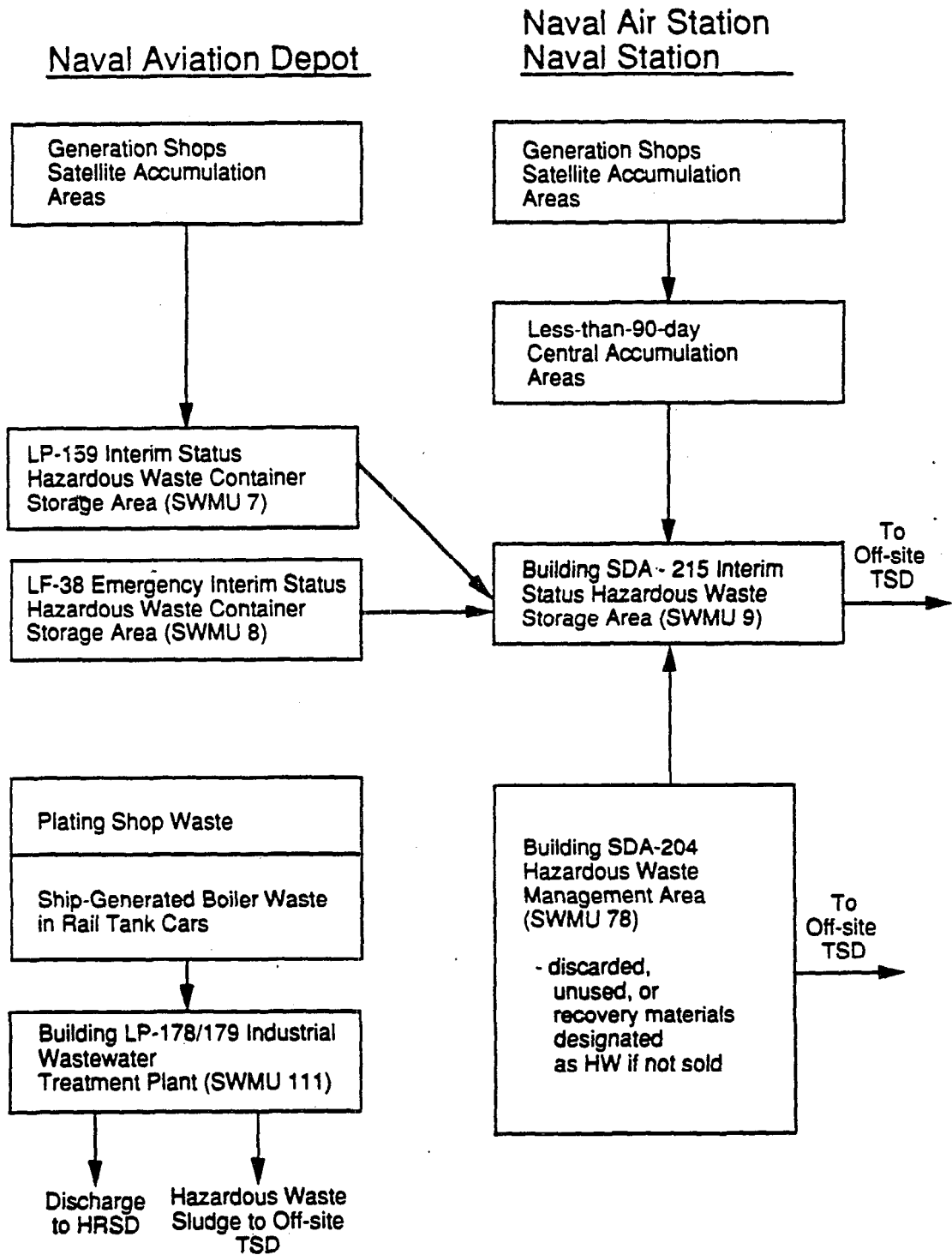
- Log number unique to each container of waste
- Date of receipt of waste at the storage facility
- Identity of generating shop
- Container type
- USEPA Hazardous Waste Number
- Description and classification
- Storage location description (Reference 15)

Upon shipment of a container off-site for disposal, the date of shipment and the Hazardous Waste Manifest Document number will be entered in the log (Reference 15).

Other hazardous wastes generated at the facility are treated on-site in the Building LP-178/179 Industrial Wastewater Treatment Plant (IWTP) (SWMU 111) (Reference 39). For the most part, wastewaters treated at the IWTP are produced as a result of metal plating operations. Dilute wastewater streams (cyanide, chrome, and "mixed chemicals") are treated continuously at the IWTP, while concentrated wastewaters (chromium and cyanide solutions) are "batch treated" (Reference 31). Treated wastewater is discharged to a POTW within the Hampton Roads Sanitation District (HRSD) (Reference 39). The wastewater treatment process is exempt under RCRA. However, the wastewater treatment plant sludge is regulated as an F006 waste (Reference 39). This sludge is drummed and stored next to the IWTP in a less-than-90-day generator storage area (SWMU 65). The sludge is

FIGURE III - 2

Hazardous Waste Management Flow Diagram
(adapted from Reference 4)



ultimately shipped off-site for disposal (Reference 39). Figure III-2 provides a Hazardous Waste Management Flow Diagram showing the above activities.

Several types of hazardous wastes generated at NNB are also recycled off-site. The Naval Station generates petroleum naphtha type degreasing solvent which is managed by a contract recycling agreement (Reference 11).

Non-hazardous solid wastes at the facility are managed in various storage, treatment, and disposal areas throughout NNB. Waste oils and hydraulic fluids generated from maintenance and repair operations are collected at the point of generation in bowsters (waste oil accumulation tanks) or oil-water separators. These wastes are periodically pumped out and hauled to the off-site Naval Supply Center - Craney Island waste oil reclamation facility (Reference 58).

Other solid wastes managed at the facility include construction debris, coal fly ash and bottom ash, and office waste (Reference 58). These wastes are currently disposed of in the CD Area Landfill (SWMU 2) (Reference 58). Infectious wastes are managed in the Brig Incinerator located in Building CD-2 (Reference 58). PCB wastes are currently stored in Building X-318 (SWMU 84) and in cell 4 of Building SDA-215 (SWMU 9) (Reference 58). These wastes will be contract hauled for off-site disposal (Reference 58).

Various non-hazardous industrial wastewaters are managed in the sanitary sewer system (SWMU 133) (Reference 58). These wastewaters include rinsewaters from paint stripping and metals plating operations, paint booth wastewater, vehicle wash rack wastewater, and spent photographic developing solution (Reference 58). Ship-to-shore discharges are also managed in the sanitary sewer system which discharges to the HRSD Sewage Treatment Plant

(STP) (Reference 58).

Prior to the early to mid-1970s, all solid and hazardous waste generated at NNB was disposed of on-site (Reference 58). The following sites were used on a regular basis for solid waste disposal:

- Camp Allen Landfill (SWMU 1): This landfill was used from the early 1940s to about 1974 for the disposal of ash from solid waste incineration, fly and bottom ash, construction and demolition debris, pesticides, asbestos, and various hazardous wastes including metals plating wastes, paint wastes, and parts cleaning wastes (Reference 58).
- Slag Pile (SWMU 120): This unit was used during the 1950s and 1960s for disposal of various kinds of metal generated during aluminum smelting operations (Reference 58).
- Apollo Fuel Disposal Sites (SWMU 16): These two sites were used from 1967 to 1969 for the disposal of monomethylhydrazine, a fuel component drained from Apollo spacecraft capsules (Reference 58).
- Pesticide Disposal Site (SWMU No. 115): This site consists of a french drain that was used for disposal of pesticide waste, including chlordane, malathion, and DDT, from the late 1960s to 1973 (Reference 58).

Additional solid wastes including salvage fuel, spent solvents, and waste ink, supplemented with residential and office refuse, were burned in the Salvage Fuel Boiler (SWMU 113) from 1967 to 1986 (Reference 2, 32, 58).

Industrial wastewaters were generally discharged to the storm sewer system (SWMU 130) and ultimately to the Elizabeth River prior to the early 1970s (Reference 58). These wastes included metals plating wastes, parts cleaning wastewaters, paint stripping wastes, and oily washwaters (Reference 58). In 1970, an EPA study concluded that industrial wastewaters generated by NAVAIREWORKFAC NORFOLK that were discharged to the storm sewer

system were a source of metals pollution (primarily chromium, cadmium, and zinc) to Willoughby Bay (Reference 58). Consequently, a waste segregation and pretreatment program was initiated (Reference 58). By 1976, virtually all industrial waste streams had been routed to the IWTP (SWMU 111) (Reference 58).

Regulatory History

This section serves to provide an understanding of the regulatory authorities involved at the facility and to provide a general knowledge of the issues and problems at the facility. A general summary of the regulatory history is provided in this section.

A. RCRA and CERCLA

In 1980, NNB submitted to EPA required forms which notified the Agency that the facility handled hazardous waste. The EPA Notification of Hazardous Waste Activity form was submitted on August 18, 1980 and the Part A Hazardous Waste Permit Application was submitted on November 18, 1980 (References 73, 74, 75, 80, 81). On December 17, 1981, EPA granted the facility interim status by the issuance of Conditions of Operation During Interim Status (Reference 62). These conditions authorized NNB to use five areas for container storage of hazardous waste (Reference 16). These areas were designated as LF-38, SDA-215, LF-18 (now LF-68), SDA-211, and an area within the Camp Allen Landfill (Reference 16).

On October 24, 1980, the Virginia Department of Health, Bureau of Solid and Hazardous Waste Management (VDWM) issued letter permit #311 to the facility to operate a landfill in the NM Industrial Waste Disposal Staging Area (Reference 72). This permit allowed the one-time disposal of contaminated soils resulting from a spill at the staging area (References 58 and 72).

In May and June 1981, NNB submitted Notification of Hazardous Waste Site forms pursuant to Section 103(c) of CERCLA for the Camp Allen Salvage Yard (SWMU 77) and the Camp Allen Landfill (SWMU 1) (References 64, 65). The forms indicated that there were suspected releases from both of these units (References 64, 65). On September 11, 1981, a RCRA compliance inspection was conducted at NNB by the VDWM (Reference 63). No significant violations were noted by the inspector and no further action was taken (Reference 63).

On July 15, 1982 a Potential Hazardous Waste Site Identification form was filed by EPA for the Camp Allen Landfill (Reference 59). The form indicated that there was a potential for soil and groundwater contamination at the unit and that the site would be assessed under EPA's Hazardous Waste Site Enforcement and Response System to determine whether a hazardous waste problem existed (Reference 59).

On September 26, 1984, a RCRA compliance inspection was conducted by the VDWM (Reference 55). A warning letter was subsequently issued on February 25, 1985 which noted the following violations:

- Incorrect completion of manifests
- Aisle space violations in container storage areas
- Waste analysis plan deficiencies
- Inadequate waste segregation and spill containment in container storage areas (References 54, 55)

On October 17, 1985, the NNB submitted comprehensive groundwater and receiver water monitoring data for the NM Area Industrial Waste Site Cleanup area (Reference 50). Data was provided for a 55-month period and indicated no significant groundwater contamination in the area (Reference 50). The monitoring program was subsequently concluded with approval from the VDWM (References 48, 50).

On February 24, 1986, a SWMU Information Request letter was sent to NNB by EPA (Reference 43). This letter requested information regarding solid waste management units under the authority of Section 3007 of RCRA (Reference 43). No evidence of a response to this request was found in the available file material.

On August 12-13, 1986, a RCRA Compliance Evaluation Inspection was conducted at NNB by EPA and VDWM (Reference 42). Numerous violations were noted in hazardous waste container storage areas and accumulation areas. Violations included the following:

- LF-18: Inadequate aisle space, inadequate emergency communication devices, and a flammable storage cabinet containing unknown quantities of wastes
- DRMO: A drum requiring overpack, drums of wastes not characterized, and inadequate inspection log
- Satellite storage areas: Unlabelled and undated drums, storage over 90 days, and open drums (Reference 42)

On June 29-30, 1987, another RCRA inspection of the facility was conducted by the VDWM and EPA (References 33, 40). Several violations were noted in a warning letter sent to the facility from VDWM on August 24, 1987 (Reference 33). These violations included the following:

- LF-18 storage area: Leaking, improperly closed containers, inadequate separation of incompatible wastes, inadequate aisle space, inadequate spill/fire control equipment and communications/alarm equipment, inadequate inspections, storage in excess of permitted amounts, improper waste storage outside of permitted areas.
- PWC: Inadequate aisle space and weekly inspection logs for waste accumulation area adjacent to IWTP.
- DRMO: Inadequate personnel training and related documentation (Reference 33).

The warning letter indicated that a meeting would be held on September 18, 1987 to discuss possible enforcement action (Reference 33).

On November 18, 1987, NNB submitted a revised Part A Permit Application for the facility to the VDWM in accordance with the meeting held on September 18, 1987 (Reference 30). Changes to the Part A included update of the types and quantities of hazardous wastes generated at the facility, and the deletion of interim status storage facilities SDA-211 and the area within the Camp Allen Landfill (References 16, 30). On January 27, 1988, the VDWM acknowledged receipt of the revised Part A and indicated that the facility had met the VDWM requirements for changes during interim status (Reference 27).

On October 26, 1988, the VDWM issued an enforcement order to NNB (Reference 16). The order included the following requirements:

- Due to the hazards associated with the LF-68 storage area, NNB must stop accepting hazardous wastes at LF-68 and begin removal of the wastes within 30 days (Reference 16).
- NNB must use LP-159 for the storage of wastes from LF-68 that cannot be handled elsewhere on the base (Reference 16).
- NNB must submit its Part B Application by November 8, 1988, including a closure plan for LF-68 (Reference 16).

On October 31, 1988, the facility submitted its Part B application to the VDWM. The application covered the following units:

- Bldg. LF-38
- Bldg. LP-159
- Bldg. SDA-215 (Reference 15)

Also on October 31, 1988, the facility submitted a Closure Plan for LF-68 (Reference 14).

On August 16, 1988, a RCRA Compliance Evaluation Inspection was conducted at NNB by EPA and VDWM (Reference 13). A warning letter dated December 14, 1988 was sent to NNB from VDWM and noted the following violations:

- NADEP: Failure to properly label/date containers
- NAS: Failure to properly label/date containers in accumulation areas, improperly closed containers in accumulation areas, inadequate weekly inspections of accumulation areas, hazardous waste storage for more than 90 days in non-permitted areas, inadequate fire and spill control equipment at accumulation areas
- DRMO: Training requirements not up to date (Reference 11)

On September 21-22, 1989, an RCRA compliance inspection was conducted at the facility by EPA and VDWM (Reference 4). The following violations were noted in a warning letter to the facility from the state dated December 11, 1989:

- Hazardous waste storage for more than 90 days in non-permitted areas
- Inadequate waste analysis plan
- LF-68: This storage area was required to cease accepting new waste and undergo removal of all waste in accordance with the VDWM enforcement order of November, 1988 but was observed to have approximately 400 drums in storage.
- Abandoned plating shops: Observed to have plating residues in process tanks and containers (Reference 4)

The warning letter stated that, due to the nature and extent of violations related to waste management at the abandoned plating

shops, the matter was being referred to the enforcement staff for further action (Reference 4).

B. NPDES and Air Pollution Control

The facility holds an NPDES permit for nine storm water outfalls that discharge from the storm sewer system in the NAVAIREWORKFAC NORFOLK area to Willoughby Bay (Reference 58). Additionally, the facility holds seven air permits issued to Naval Station Norfolk (2), Naval Air Station Norfolk (1), Public Works Center Norfolk (1), Naval Aviation Depot Norfolk (1), Fleet Training Center Norfolk (1), and Naval Supply Center Norfolk (1) (References 1, 5, 15).

On December 4, 1989 the Virginia Department of Air Pollution Control issued a permit to install and operate three portable fuel oil boilers at NAS (Reference 5). This permit was revised on February 16, 1990 to reflect an increase in fuel oil consumption limits (Reference 1).

C. Navy Assessment and Control of Installation Pollutants (NACIP)

From April 1982 to February 1983, an Initial Assessment Study (IAS) of NNB was conducted by the Naval Energy and Environmental Support Activity (Reference 58). This study represented the first phase of the Navy Assessment and Control of Installation Pollutants (NACIP) Program, which is designed to accomplish the following:

- Identify any environmental contamination resulting from past hazardous material storage, handling, and waste disposal operations at shore installations
- Assess the impact, or potential for impact, of the contamination on public health and the environment, and

- Provide corrective measures, as needed, to prevent contamination from causing adverse effects on public health or the environment (Reference 58).

Based on information from historical records, aerial photographs, field inspections, and personnel interviews, 18 potentially contaminated sites were identified in the IAS report (Reference 58). These sites are considered to be SWMUs or AOCs for the purposes of this Preliminary Review and are listed in Table III-3.

The IAS included on evaluation of each of the 18 sites with regard to contaminant characteristics, migration pathways, and pollutant receptors (Reference 58). The study concluded that, while none of the sites poses an immediate threat to human health or the environment, six sites warrant the initiation of a Confirmation Study (Phase 2 of the NACIP Program) to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems (Reference 58). The six sites recommended for confirmation are the following:

- Camp Allen Landfill, Site 1 (SWMU 1)
- CD Landfill, Site 6 (SWMU 2)
- Q Area Drum Storage Yard, Site 3 (SWMU 74)
- Transformer Storage Area, Site 4 (SWMU 75)
- Slag Pile, Site 2 (SWMU 120)
- Pesticide Disposal Site, Site 5 (SWMU 15) (Reference 58)

The results of the Confirmation Study will be used to evaluate the necessity of conducting mitigating actions or cleanup operations (Reference 58).

TABLE III - 3

Potentially Contaminated Sites Identified
in the Initial Assessment Study
(Reference 58)

Site 1:	Camp Allen Landfill (SWMU 1)
Site 2:	Slag Pile (SWMU 120)
Site 3:	Q Area Drum Storage Yard (SWMU 74)
Site 4:	Transformer Storage Area (SWMU 75)
Site 5:	Pesticide Disposal Site (SWMU 115)
Site 6:	CD Landfill (SWMU 2)
Site 7:	Inert Chemical Landfill (SWMU 3)
Site 8:	Asbestos Landfill (SWMU 4)
Site 9:	Q Area Landfill (SWMU 5)
Site 10:	Apollo Fuel Disposal Sites (SWMU 116)
Site 11:	Instrument Repair Shop Drains (SWMU 128)
Site 12:	Alleged Mercury Disposal Site (SWMU 117)
Site 13:	Past Industrial Wastewater Outfalls (SWMU 129)
Site 14:	Underground Oil Spill - Piers 4, 5, and 7 (SWMU 118)
Site 15:	Underground Spill - Piers 20, 21, and 22 (SWMU 119)
Site 16:	Chemical Fire - Building X-136 (AOC A)
Site 17:	Chemical Fire - Building SDA-215 (AOC B)
Site 18:	Former NM Hazardous Waste Storage Area (SWMU 76)

History of Releases

Based on a review of the file material, a number of incidents involving releases of hazardous wastes or hazardous materials to the environment have been identified. These releases are described in the following paragraphs.

In 1971, a fire occurred in the northern portion of the Camp Allen Salvage Yard (SWMU 77) where waste lubricating oil, organic solvents, paints, paint thinners, acids, caustics, and pesticides were stored pending disposal (Reference 58). The fire was reportedly caused by incompatible storage of chemicals (Reference 58). Residues from the fire, including the wastes listed above, were buried in a trench-type landfill located east and northeast of the salvage yard (Reference 58). This site is part of the Camp Allen Landfill (SWMU 1) (Reference 58).

Two other fires involving releases of hazardous wastes were identified in the file material. On July 18, 1979, a chemical fire occurred in Building X-136 (AOC A) as a result of incompatible chemical storage, particularly storage of calcium hypochlorite and acids (Reference 58). During the firefighting operation, approximately two tons of calcium hypochlorite was flushed down the storm drain with water and ultimately discharged to the Elizabeth River (Reference 58). The Virginia State Water Control Board was notified of this procedure and no subsequent adverse impacts to the water quality of the river were observed (Reference 58). Inspection of the chemical fire site during the Installation Assessment Study indicated that the site had been cleaned up (Reference 58).

Another chemical fire took place on August 12, 1981 in cell 6 of Building SDA-215 (AOC B) (Reference 58). This fire occurred as a result of incompatible chemical storage, predominantly storage of

calcium hypochlorite and acids (Reference 58). The site was cleaned up by removing the remaining hazardous chemicals, residues, and the contaminated soil adjacent to the building. These materials were sent off-site to a hazardous waste disposal facility (Reference 58).

Releases of oil to the Elizabeth River occurred in two separate areas in 1979. Approximately 100 gallons of oil per day seeped into the river from behind the seawall near piers 4, 5, and 7 (SWMU 118) (Reference 58). It was determined that leaks in the pier fuel distribution system had resulted in the accumulation of oil behind the sea wall in these pier areas (Reference 58). A french drain was installed in this area and approximately 50,000 gallons of oil was recovered using pumps (Reference 58). The french drain is inspected periodically for oil accumulation (Reference 58). The second oil release to the Elizabeth River was intermittent oil seepage from behind the seawall near piers 20, 21, and 22 (SWMU 119) (Reference 58). The soils behind the seawall were contaminated with oil; however, no free oil was detected (Reference 58). The contaminated soils were removed (Reference 58).

Several intentional releases have occurred in various areas of the facility. In July 1979, an intentional spill occurred at the (now former) NM Hazardous Waste Storage Area (SWMU 76) (Reference 58). A pit was excavated and an existing drainage ditch was expanded to convey waste oil and contaminated storm water runoff to the unlined pit (Reference 58). The wastes were pumped from the pit for transport to the IWTP (SWMU 111) (Reference 58). Sampling and analysis of soils in the area indicated the presence of chromium, cadmium, and other metals at non-hazardous levels (Reference 58). Contaminated soils were disposed at the site, which was graded and seeded in accordance with a landfill permit obtained from the Virginia SDH in October 1980 for one-time-only disposal (Reference 58). Groundwater

monitoring was conducted at the site for 55 months and no significant contamination was detected (Reference 50).

Between 1967 and 1969, monomethylhydrazine, a fuel component used in the Apollo spacecraft capsules, was drained from the capsules and poured onto the ground surface in two disposal sites. (SWMU 116) (Reference 58). The first site was located in a fenced area north of the Taussig cans, and the second site was located near Building NM-37 (Reference 58). Inspection of the sites during the IAS revealed no evidence of stressed vegetation (Reference 58).

Intentional releases of industrial wastewaters to the storm sewer (SWMU 130) system and the sanitary sewer system (SWMU 133) at the facility have occurred since the 1940s. From the 1940s to 1976, industrial wastewaters including metals plating solutions and rinsewaters, paint stripping solutions, and degreasing compounds were discharged to the storm sewer system in the NAVAIREWORKFAC NORFOLK area and ultimately to Willoughby Bay (Reference 58). Bottom sediment data for Willoughby Bay indicate metals contamination (Reference 58). The storm sewer no longer manages industrial wastewaters, and nine outfalls in the NAVAIREWORKFAC NORFOLK area are currently subject to NPDES permit limitations (Reference 58).

From 1946 to the present, the sanitary sewer system has been managing and discharging various industrial and laboratory wastewaters, including vehicle wash rack and paint booth wastewaters and photograph and x-ray developing wastewaters (Reference 58). These wastes are discharged to the Hampton Roads Sanitation District (HRSD) sewage treatment plant (STP) (Reference 58). Discharges of oil to the sanitary sewer have reportedly caused occasional operational problems at the HRSD STP (Reference 58).

From the 1940s to 1978, transformer oil was reportedly drained from out-of-service transformers onto the ground surface in the Transformer Storage Area south of Building P-71 (SWMU 75) (Reference 58). Although much of the area has since been covered with gravel, dark stains on the soil surface were observed during the IAS survey (Reference 58).

In April 1982, a spring at the southeastern edge of the Camp Allen Landfill (SWMU 1) was discovered to be discharging a Prussian Blue dye into Boush Creek to West Bay (Reference 80). The dye was analyzed and was found to contain chromium, nickel, zinc, and copper below hazardous levels (Reference 80). The leachate was discovered to be discharging from what was believed to be an abandoned storm drain, and was assumed to have been released from a newly ruptured drum in the landfill (Reference 80). The drain was subsequently sealed off. According to a representative of the Naval Facilities Engineering Command, previous spills had occurred in the area as a result of the rupture of "black oil" drums in the landfill (Reference 80). Groundwater monitoring results in the landfill vicinity reportedly indicate occasional violations of Virginia groundwater standards for chromium, zinc, silver, lead, and phenols (Reference 58).

On December 10, 1986, two 55-gallon drums containing PCBs ruptured during unloading of a commercial seavan container, releasing PCB material into a 30-foot by 40-foot area of the Camp Allen Hazardous Waste Management Area (SWMU 77). The area was covered with plastic and absorbent material and clean-up actions were planned (Reference 37).

List of Potential SWMUs and AOCs

Table III-4 is a list of Potential SWMUs and AOCs at NNB identified through review of the available file material. Chapter IV provides descriptions of SWMUs and AOCs based on this review.

The SWMUs and AOCs have been primarily organized by unit type and include the following: landfills, container storage areas, tanks, wastewater treatment plants, incinerators, disposal areas, spill areas, waste piles, wash racks, other units, and AOCs. Because of the large number of container storage areas at the site, this unit type has been divided into the following groups: Container Storage Areas - RCRA; Container Storage Areas - Naval Station; Container Storage Areas - Naval Aviation Depot, Container Storage Areas - HQ and Service Battalion Fleet Marine Force; Container Storage Areas - Armed Force Staff College; Container Storage Areas - Fleet Training Center; and Container Storage Areas - Other.

TABLE III - 4

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Solid Waste Management UnitsLandfills

1. Camp Allen Landfill (IAS Site 1)
2. CD Landfill (IAS Site 6)
3. Inert Chemical Landfill (IAS Site 7)
4. Asbestos Landfill (IAS Site 8)
5. Q Area Landfill (IAS Site 9)

Container Storage Areas - RCRA

6. Building LF-68 (18) Interim Status Hazardous Waste
Container Storage Area
7. Building LP-159 Interim Status Hazardous Waste
Container Storage Area
8. Building LF-38 Emergency Interim Status Hazardous Waste
Container Storage Area
9. Building SDA-215 Interim Status Hazardous Waste
Container Storage

Container Storage Areas - Naval Station

10. Building FRP-14 Hazardous Waste Accumulation Area
11. Building KCC Hazardous Waste Accumulation Area
12. Building DS-31 Hazardous Waste Accumulation Area
13. Building CA-483 Hazardous Waste Accumulation Area
14. Building CA-11 Hazardous Waste Accumulation Area
15. Building LAG-35 Hazardous Waste Accumulation Area
16. Building W-7 Hazardous Waste Accumulation Area

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Container Storage Areas - Naval Station (Cont'd)

17. Building U-115 Hazardous Waste Accumulation Area
18. Building CEP-188 Hazardous Waste Accumulation Area
19. Building SP-1 Hazardous Waste Accumulation Area
20. Building SP-2A Hazardous Waste Accumulation Area
21. Building SP-2B Hazardous Waste Accumulation Area
22. Building SP-10 Hazardous Waste Accumulation Area
23. Building SP-31 Hazardous Waste Accumulation Area
24. Building SP-241 Hazardous Waste Accumulation Area
25. Building NM-37 Hazardous Waste Accumulation Area
26. Building LP-2 Hazardous Waste Accumulation Area
27. Building LP-3 Hazardous Waste Accumulation Area
28. Building LP-4 Hazardous Waste Accumulation Area
29. Building SP-12 Hazardous Waste Accumulation Area
30. Building LP-13 Hazardous Waste Accumulation Area
31. Building LP-14 Hazardous Waste Accumulation Area
32. Building LP-Fuel Farm Hazardous Waste Accumulation Area
33. Building U-96 Hazardous Waste Accumulation Area
34. Building S-33 Hazardous Waste Accumulation Area
35. Building LF-60 Hazardous Waste Accumulation Area
36. Building V-10 Hazardous Waste Accumulation Area
37. Building V-36 Hazardous Waste Accumulation Area
38. Building V-58 Hazardous Waste Accumulation Area

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Container Storage Areas - Naval Aviation Depot

- 39. Building LF-34 Hazardous Waste Accumulation Area
- 40. Building LF-51 Hazardous Waste Accumulation Area
- 41. Building LF-53A (NE) Hazardous Waste Accumulation Area
- 42. Building LF-53B (E) Hazardous Waste Accumulation Area
- 43. Building V-4 Hazardous Waste Accumulation Area
- 44. Building V-28A (W) Hazardous Waste Accumulation Area
- 45. Building V-28B (W) Hazardous Waste Accumulation Area
- 46. Building V-28C (NW) Hazardous Waste Accumulation Area
- 47. Building V-28D (NW) Hazardous Waste Accumulation Area
- 48. Building V-28E (SE) Hazardous Waste Accumulation Area
- 49. Building V-28F (SE) Hazardous Waste Accumulation Area
- 50. Building V-28G (NE) Hazardous Waste Accumulation Area
- 51. Building V-31 Hazardous Waste Accumulation Area
- 52. Building V-38A Hazardous Waste Accumulation Area
- 53. Building V-38B Hazardous Waste Accumulation Area
- 54. Building V-38C Hazardous Waste Accumulation Area
- 55. Building V-42 Hazardous Waste Accumulation Area
- 56. Building V-88 Hazardous Waste Accumulation Area
- 57. Building V-114 Hazardous Waste Accumulation Area
- 58. Building V-143 Hazardous Waste Accumulation Area
- 59. Building V-147A (SE) Hazardous Waste Accumulation Area
- 60. Building V-147B (S) Hazardous Waste Accumulation Area
- 61. Building LP-20A Hazardous Waste Accumulation Area
- 62. Building LP-20B Hazardous Waste Accumulation Area
- 63. Building LP-23 Hazardous Waste Accumulation Area
- 64. Building LP-167 Hazardous Waste Accumulation Area

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval BaseContainer Storage Areas - Naval Aviation Depot (Cont'd)

- 65. Building LP-178/179 Hazardous Waste Accumulation Area
- 66. Building LP-201 Hazardous Waste Accumulation Area
- 67. Building U-132 Hazardous Waste Accumulation Area

Container Storage Areas - HQ and Service Battalion Fleet Marine Force

- 68. Building M-65 Hazardous Waste Accumulation Area
- 69. Building MCA-9 Hazardous Waste Accumulation Area

Container Storage Areas - Armed Force Staff College

- 70. Building SC-401A (rear) Hazardous Waste Accumulation Area
- 71. Building SC-401B (front) Hazardous Waste Accumulation Area
- 72. Building SC-401C (pistol range) Hazardous Waste Accumulation Area

Container Storage Areas - Fleet Training Center

- 73. Fire Fighting School Hazardous Waste Accumulation Area

Container Storage Areas - Other

- 74. Q Area Drum Storage Yard (IAS Site 3)
- 75. Transformer Storage Area (IAS Site 4)
- 76. Former NM Hazardous Waste Storage Area (IAS Site 18)
- 77. Camp Allen Hazardous Waste Management Area
- 78. Building SDA-204 Hazardous Waste Management Area
- 79. Building SDA-211 Hazardous Waste Management Area

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Container Storage Areas - Other (Cont'd)

- 80. No. 93300 (Paint Shop) Hazardous Waste Accumulation Area
- 81. Building LP-27 Hazardous Waste Accumulation Area
- 82. Building LP-28 Hazardous Waste Accumulation Area
- 83. Building W-318 PCB Storage Area
- 84. Building X-318 PCB Storage Area

Tanks

- 85. SIMA Waste Tank No. 1 (ME Rm. No. 1)
- 86. SIMA Waste Tank No. 2 (Building 31E)
- 87. SIMA Waste Tank No. 3 (Building 51F)
- 88. SIMA Waste Tank No. 4 (Building 64A)
- 89. SIMA Waste Tank No. 5 (Building FC-Repair Shop)
- 90. SIMA Waste Tank No. 6 (Building 72D)
- 91. SIMA Waste Tank No. 7 (Building 31C)
- 92. SIMA Waste Tank No. 8 (ME Rm. No. 6)
- 93. Heptane UST No. 1
- 94. Heptane UST No. 2
- 95. Heptane UST No. 3
- 96. Heptane UST No. 4
- 97. Heptane UST No. 5
- 98. Heptane UST No. 6
- 99. Heptane UST No. 7
- 100. Heptane UST No. 8
- 101. Heptane UST No. 9
- 102. Heptane UST No. 10
- 103. Heptane UST No. 11

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Tanks (Cont'd)

- 104. Heptane UST No. 12
- 105. V-93-1 Waste Oil Tank
- 106. V-93-2 Waste Oil Tank
- 107. V-93-3 Waste Oil Tank
- 108. Building V-49 Waste Oil Bowser
- 109. Engine and Propeller Repair Shops Waste Oil Bowser
- 110. Buildings SP-145 and SP-147 Waste Oil Bowser

Wastewater Treatment Plant

- 111. Building LP-178/179 Industrial Waste Treatment Plant
- 112. Fire Fighting Industrial Wastewater Treatment Plant

Incinerators

- 113. Salvage Fuel Boiler Site
- 114. Incinerator (Brig Location)

Disposal Areas

- 115. Pesticide Disposal Site (IAS Site 5)
- 116. Apollo Fuel Disposal Sites (IAS Site 10)
- 117. Alleged Mercury Disposal Site (IAS Site 12)

Spill Areas

- 118. Underground Oil Spill - Piers 4,5,7 (IAS Site 14)
- 119. Underground Oil Spill - Piers 20,21,22 (IAS Site 15)

TABLE III - 4 (Cont'd)

Potential Solid Waste Management Units and
Other Areas of Concern at Norfolk Naval Base

Waste Piles

120. Slag Pile (IAS Site 2)

Wash Racks

121. Building A-80 Vehicle Wash Rack 1
122. Building A-80 Vehicle Wash Rack 2
123. Building A-81 Vehicle Wash Rack 1

Other Units

124. Building V-28 Abandoned Plating Shop (Tank/Containers)
125. Building LP-20 Abandoned Plating Shop (Tank/Containers)
126. Building V-28 Oil Water Separator
127. Building V-28 Dumpster
128. Instrument Repair Shop Drains (IAS Site 13)
129. Past Industrial Wastewater Outfalls (IAS Site 13)
130. Storm Sewer System
131. Building V-49 Oil Water Separator
132. Building W-143 Dumpster
133. Sanitary Sewer System

Areas of Concern

- A. Chemical Fire - Building X-136 (IAS Site 16)
B. Chemical Fire - Building SDA-215 (IAS Site 17)

IV. DESCRIPTIONS OF SOLID WASTE MANAGEMENT UNITS AND OTHER
AREAS OF CONCERN

1. UNIT NAME: Camp Allen Landfill (IAS Site 1)

Unit Description: This outdoor unit is an approximately 45-acre landfill located on Helmick Street adjacent to the DPDO Salvage Yard (References 58 and 65). The landfill consists of an eastern and western portion. The eastern portion received wastes from a salvage yard fire, and the western portion was used for the disposal of wastes generated at NNB (Reference 58). The eastern portion of the unit was a trench-type landfill, consisting of trenches reportedly about 150 feet long by 10 feet wide by six to eight feet deep (Reference 58). The majority of the landfill site is currently covered with grass, and a brig (Bldg. CA-484) and a heliport have been constructed over the western portion of the site (Reference 58). The landfill is rimmed with tidal drainage ditches which convey stormwater runoff from the area (Reference 58).

Date of Start-up: This unit began operating in the early 1940s (Reference 58).

Date of Closure: This unit ceased operation in about 1974 (Reference 58).

Waste Managed: This unit managed ash from solid waste incineration, coal fly and bottom ash, metals plating sludges, parts cleaning and paint stripping sludges, overage chemicals, chlorinated organic solvents, waste oil, acids, caustics, pesticides, asbestos, scrap metal, and construction and demolition debris (Reference 58). Based on industrial waste generation rates it is estimated that approximately 40,000 pounds of metals plating sludge, 60,000 pounds of parts cleaning sludge, and 400,000 pounds of paint stripping residue have been disposed of in the landfill (Reference 58).

1. UNIT NAME: Camp Allen Landfill (Cont'd)

Release Controls: No release controls were identified for this unit through review of the available file material.

History of Releases: In April 1982, a spring at the southeastern edge of the landfill was discovered to be discharging a non-hazardous Prussian Blue dye into Boush Creek to West Bay. An analysis of the discharge is provided in Table IV-1. During the course of the site investigations and cleanup efforts, it was found that the leachate was discharging from a pipe believed to be an abandoned storm drain. The source was assumed to be from a newly ruptured drum (Reference 83). On April 14, 1982 the discharge was cleaned up (Reference 83). The drain was sealed off using an inflatable pig. No further discharge has been discovered (Reference 83). According to a representative of the Naval Facilities Engineering Command, previous spills had occurred due to the rupture of "black oil" drums (Reference 83). Additionally, monitoring results for seven groundwater monitoring wells located in and around the landfill indicate occasional violations of Virginia groundwater standards for chromium, zinc, silver, lead, and phenols (Reference 58).

1. UNIT NAME:

Camp Allen Landfill (Cont'd)

Information Needs:

1. Identify the acreage of the eastern portion and the western portion of the site.
2. Identify exact start-up/closure dates.
3. Identify any unit release controls.
4. Identify any additional known or suspected unit releases.
5. Identify any additional information regarding remediation activities.

TABLE IV-1

Analysis of Camp Allen Landfill Discharge,
April 1982 (Reference 83)

Chromium	0.5 mg/l
Nickel	0.25 mg/l
Zinc	8.74 mg/l
Copper	51.00 mg/l
Iron	2055.00 mg/l
Cyanide	None Detected
Ferro/Ferri Cyanide	None Detected
pH	6.98

2. **UNIT NAME:** CD Landfill (IAS Site 6)
- Unit Description:** This outdoor unit is a landfill located off of Hampton Boulevard just south of the Navy Exchange Warehouse (Reference 19). The unit consists of two adjacent areas. The eastern portion was used from 1974 to 1979 and the western portion was used from 1979 to 1987 (Reference 19). The unit was used for disposal of construction debris, ash, and cadmium dust from sandblasting operations (Reference 58). A grading, fencing and closure plan for this unit was prepared in October 1988 which proposed future use of the site as a parking lot (Reference 19).
- Date of Start-up:** This unit began operating in 1974 (References 19 and 58).
- Date of Closure:** This unit ceased operation in 1987 and closure activities were initiated (Reference 19). A grading, fencing and closure plan was prepared in October 1988 (Reference 19).
- Waste Managed:** This unit managed construction debris, ash from the Salvage Fuel Boiler (Bldg. Z-309) and the power plant (Bldg. P-1), and a maximum of 1,500 cubic yards of drummed cadmium dust from sandblasting operations at Naval Air Rework Facility, Norfolk (Reference 58). The cadmium dust was found to be EP toxic for cadmium and was not placed in the unit after 1981 (Reference 58).
- Release Controls:** No release controls were identified for this unit through review of the available file material.
- History of Releases:** No evidence of release was identified through review of the available file material.

2. UNIT NAME: CD Landfill (Cont'd)

Information Needs:

1. Identify the size and dimensions of both portions of the unit.
2. Identify whether the unit has been closed.
3. Identify any unit release controls.
4. Identify any known or suspected unit releases.

3. UNIT NAME: Inert Chemical Landfill (IAS Site 7)
- Unit Description: This outdoor unit is a landfill located south of the CD Landfill (SWMU 2) (Reference 58). It is constructed of a one-foot clay base and six-foot clay side berms (Reference 58). The unit was used for a one-time disposal of overage inert chemicals on June 25, 1979, with the approval of the Solid and Hazardous Waste Management Division, Virginia SDH (Reference 58). The final landfill cover consists of two feet of soil capped with one foot of clay (Reference 58).
- Date of Start-up: This unit began operating on June 25, 1979 (Reference 58).
- Date of Closure: This unit ceased operation on June 25, 1979 (Reference 58).
- Waste Managed: This unit managed a one-time disposal of overage inert chemicals, primarily unused ion exchange resins (Reference 58). Eighty-four pallets of these wastes were buried in the unit (Reference 58).
- Release Controls: The unit is constructed of a one-foot clay base and a six-foot clay side berms and has a one foot clay cap underlain by two feet of soil to prevent contaminant migration (Reference 58).
- History of Releases: No evidence of release was identified through review of the available file material (Reference 58).
- Information Needs:
1. Identify the unit size and dimensions.
 2. Indicate whether the unit has undergone formal closure.
 3. Identify any known or suspected unit releases.

4. **UNIT NAME:** Asbestos Landfill (IAS Site 8)
- Unit Description:** This unit is a landfill located just east of the Inert Chemical Landfill (SWMU No. 3) (Reference 58). It is constructed of a clay base, clay side berms, and a clay cap (Reference 58).
- Date of Start-up:** This unit began operating on June 27, 1979 (Reference 58).
- Date of Closure:** This unit ceased operation on June 27, 1979 (Reference 58).
- Waste Managed:** This unit managed a single disposal of asbestos generated during a ship refitting operation (Reference 58). 6,500 bags of asbestos were buried in the unit (Reference 58).
- Release Controls:** Asbestos waste was double-bagged prior to burial in the unit (Reference 58). The unit is constructed of a clay base and clay side berms and has a clay cap to prevent contaminant migration (Reference 58).
- History of Releases:** No evidence of release was identified through review of the available file material.
- Information Needs:**
1. Identify the size and dimensions of the unit and the thickness of the clay base, berms, soil cover, and clay cap.
 2. Indicate whether the unit has undergone formal closure.
 3. Identify any known or suspected unit releases.

5. UNIT NAME: Q Area Landfill (IAS Site 9)
- Unit Description: This outdoor unit is a landfill located on the extreme northwestern end of NNB in the Q area (Reference 58). It was reportedly used for the disposal of construction debris only (Reference 58). There is reportedly no evidence of hazardous waste disposal in this unit (Reference 58).
- Date of Start-up: This unit began operating in 1974 (Reference 58).
- Date of Closure: This unit ceased operation in 1978 (reference 58).
- Waste Managed: This unit managed construction debris (Reference 58).
- Release Controls: No release controls were identified through review of the available file material.
- History of Releases: No evidence of release was identified through review of the available file material.
- Information Needs:
1. Identify the size, dimensions, and materials of construction of the unit.
 2. Identify exact unit start-up/closure dates.
 3. Determine if hazardous wastes or constituents were managed in the unit.
 4. Identify any unit release controls.
 5. Identify any additional known or suspected unit releases.

6-9. UNIT NAME: Container Storage Areas - RCRA

Unit Description: See Table IV-2

Date of Start-up: See Table IV-2 (Operational Status)

Date of Closure: See Table IV-2 (Operational Status)

Waste Managed: See Table IV-2

Release Controls: See Table IV-2

History of Releases: See Table IV-2

Information Needs: See Table IV-2

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-2

CONTAINER STORAGE AREAS - RCRA

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
6	Bldg. LF-68 (18) Interim Status Hazardous Waste Container Storage Area is a 108 foot by 417 foot unroofed area bounded on all sides by a chain link fence and surfaced with perforated steel plating overlying the soil base. The unit is located on Avionics Loop and is surrounded on three sides by the heliport. The unit is used for the storage of hazardous wastes generated by industrial processes throughout NADEP. Wastes are stored in containers on pallets and are picked up by contractors for offsite disposal. The unit is currently undergoing closure under an enforcement order issued by the Virginia Department of Waste Management in October 1988.	Early 1970s-present, undergoing closure	Waste oils, dichloromethane waste, ammonium nitrate waste, cyanide wastes, glass blast residue, oxidizers, phenolic stripper, corrosive wastes, ignitable wastes, waste sulfuric, hydrochloric, hydrofluoric, and nitric acids, nickel chloride and nickel sulfide wastes, waste chromic acid. Maximum waste inventory is 140,580 gallons.	Containers are stored on wooden pallets. Improper spill containment was observed during a September 1984 RCRA inspection. Leaking Containers were observed during a June 1987 RCRA inspection. The closure plan includes soil sampling analysis.	13, 14, 16, 31, 33, 40, 54	1. Start-up/closure dates 2. History of releases 3. Soil sampling results

TABLE IV-2 (Cont'd)

CONTAINER STORAGE AREAS - RCRA

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
7	Bldg. LP-159 Interim Status Hazardous Waste Container Storage Area is a 90 foot by 60 foot enclosed concrete building located on Tower Street. The unit is underlain by a concrete slab and includes five storage bays and a staging area that are separated by 8-foot high concrete block walls. This unit is used for the storage of hazardous wastes generated by various shops at the facility. Wastes from this unit are transferred to the SDA-215 Storage facility for shipment to an off-site TSD facility.	1988 or 1989 to present	Oxidizers, general wastes, alkalis, organics, acids. Capacity is 600 55-gallon drums.	The unit is located indoors on a concrete base which is sloped from a rolled berm in the center to the side walls. No known releases.	4, 15, 16	1. Actual start-up date 2. Additional release controls 3. History of releases
8	Bldg. LF-38 Emergency Interim Status Hazardous Waste Container Storage Area is an approximately 4800 square foot building located off of Pocahontas Street. The unit is underlain by a concrete slab which is being modified to provide spill containment. This unit is used for the storage of ignitable wastes.	Granted interim status in December 1986. Sept. 1989 inspection noted no containers in this unit.	Ignitable wastes	The unit is located on a concrete base which is being modified to provide perimeter curbs, rolled berms, and a sloping floor. The floor will be coated with an acid-resistant sealer. History of releases is unknown.	4, 15, 16, 54	1. Unit dimensions and materials of construction 2. Operational status 3. Start-up date 4. Waste types 5. Source of waste 6. Additional release controls 7. History of releases

TABLE IV-2 (Cont'd)

CONTAINER STORAGE AREAS - RCRA

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
9	Bldg. SDA-215 Interim Status Hazardous Waste Container Storage Area is located off of Leutz Street. It has a total capacity of 32,000 square feet and is comprised of four separated cells which are further divided into storage bays. This unit manages hazardous wastes from on-site operations and from off-site facilities in SPNC. Wastes are disposed of off-site by a contractor selected by DRMO.	Active. Unit was granted interim status in December 1981.	Acids, spent batteries, caustics, flammable liquids, flammable solids and pesticides, general wastes, mercuric nitrate, oxidizers, paint wastes.	This unit is located indoors. Wastes are stored on pallets and storage bays are surrounded by concrete block walls and rolled berms. Release history is unknown.	31,15,13	<ol style="list-style-type: none"> 1. Unit size/dimensions and material of construction 2. Start-up date 3. History of releases

10-18. UNIT NAME: Container Storage Areas -
Naval Station

Unit Description: See Table IV-3

Date of Start-up: See Table IV-3 (Operational Status)

Date of Closure: See Table IV-3 (Operational Status)

Waste Managed: See Table IV-3

Release Controls: See Table IV-3

History of Releases: See Table IV-3

Information Needs: See Table IV-3

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-3

CONTAINER STORAGE AREAS - NAVAL STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
10	FRP-14 Hazardous Waste Accumulation Area is located in the northwest end outside the building (Marine Engine Repair), at Fleet Recreation Park off Hampton Road.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
11	KCC Hazardous Waste Accumulation Area is located at the west end of the building (Small Engine Repair Shop) on Piersey Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
12	DS-31 Hazardous Waste Accumulation Area is located at the Southeast End (Engine Repair shop) Deperming Station/Elizabeth River Army Corps of Engineer Dock Area in Downtown Norfolk.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
13	CA-483 Hazardous Waste Accumulation Area is located at the south end of the building (Engine Repair Shop) at the Navy Brig off of Ingersol Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
14	CA-11 Hazardous Waste Accumulation Area is located at the north end of the building (Truck Repair) on Ninth Avenue.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes

						<ol style="list-style-type: none"> 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
15	LAG-35 Hazardous Waste Accumulation Area is located at the southwest end of the building (Repair Shop) at the end of Moffett Avenue.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
16	W-7 Hazardous Waste Accumulation Area is located at the northwest end of the building (Engine Repair) on Dillingham Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
17	U-115 Hazardous Waste Accumulation Area is located at the southwest end of the building (Auto Hobby Shop) on West D Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
18	CEP-188 Hazardous Waste Accumulation Area is located at the south end of the building (Auto Hobby Shop) on A Avenue close to Pier 23.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

19-38. UNIT NAME: Container Storage Areas -
 Naval Air Station

Unit Description: See Table IV-4

Date of Start-up: See Table IV-4 (Operational Status)

Date of Closure: See Table IV-4 (Operational Status)

Waste Managed: See Table IV-4

Release Controls: See Table IV-4

History of Releases: See Table IV-4

Information Needs: See Table IV-4

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-4

CONTAINER STORAGE AREAS - NAVAL AIR STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
19	SP-1 Hazardous Waste Accumulation Area is located in the northwest corner of the building on A Street.	Unknown	Unknown	Unknown f	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
20	SP-2A Hazardous Waste Accumulation Area is located in the northeast corner of the building on A Street.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
21	SP-2B Hazardous Waste Accumulation Area is located southeast of Bldg. SP-2 next to the Coast Guard Trailer on A Street.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
22	SP-10 Hazardous Waste Accumulation Area is located south of Bldg. SP-10 and west of SP-356 on Fifth Avenue.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

TABLE IV-4 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AIR STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
23	SP-31 Hazardous Waste Accumulation Area is located at the northwest corner of the building on A Street.	Unknown	Unknown	Unknown	22, 39	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
24	SP-241 Hazardous Waste Accumulation Area is located east of Bldg. SP-241 inside the fenced enclosure on A Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
25	NM-37 Hazardous Waste Accumulation Area is located northeast of Bldg. NM-37 inside the Weapons Compound on Patrol Road.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
26	LP-2 Hazardous Waste Accumulation Area is located at the north end of Bldg. LP-2 on Fourth Avenue.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

TABLE IV-4 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AIR STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
27	LP-3 Hazardous Waste Accumulation Area is located at the southend of Bldg. LP-3 on Fourth Avenue. This unit manages wastes generated by the Maintenance Shop.	Unknown	JP 4, 5, and 8 waste fuel, freon, waste oils.	The unit is situated on a concrete base. Signs of oil spillage were observed on the concrete during a RCRA Compliance Evaluation Inspection in August 1988.	11, 13, 20, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Additional waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
28	LP-4 Hazardous Waste Accumulation Area is located at the south end of Bldg. LP-4 on Fourth Avenue.	Unknown	Thinner	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Additional waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
29	LP-12 Hazardous Waste Accumulation Area is located in the northeast corner of Bldg. LP-12 on Fourth Avenue.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
30	LP-13 Hazardous Waste Accumulation Area is located in the northwest corner of Bldg. LP-13 on Fourth Avenue. This unit manages wastes generated in the Maintenance Shop.	Unknown	Unknown	Unknown	13, 20, 22, 39	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

TABLE IV-4 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AIR STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
31	LP-14 Hazardous Waste Accumulation Area is located in the southwest corner of Bldg. LP-14 on Fourth Avenue. This unit manages wastes generated in the Maintenance Shop.	Unknown	Unknown	Unknown	11, 13, 20, 22, 39	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
32	LP Fuel Farm Hazardous Waste Accumulation Area is located in the northeast corner of LP Fuel Farm outside the fence on Tower Street.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
33	U-96 Hazardous Waste Accumulation Area is located south of U-96 (Test Cell) on West D Street.	Unknown	Mogas/absorbent	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Additional waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
34	S-33 Hazardous Waste Accumulation Area is located on the north side of S-33 (Caged Area) on Franklin Street.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

TABLE IV-4 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AIR STATION

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
35	LF-60 Hazardous Waste Accumulation Area is located northwest of Bldg. LF-60 on Pocahontas Street.	Unknown	Unknown	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
36	V-10 Hazardous Waste Accumulation Area is located between Ranger and Yorktown Avenue.	Unknown	Thinner	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Additional waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
37	V-36 Hazardous Waste Accumulation Area is located in the southeast corner of Bldg. V-36 at Tow Way and Pocahontas.	Unknown	Thinner	Unknown	11, 22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Additional waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction
38	V-58 Hazardous Waste Accumulation Area is located in the southeast corner of Bldg. V-58 at Tow Way and Pocahontas.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities managed 4. Disposition of wastes 5. Release controls 6. History of releases 7. Unit dimensions, capacity, and materials of construction

39-67. UNIT NAME: Container Storage Areas -
 Naval Aviation Depot

Unit Description: See Table IV-5

Date of Start-up: See Table IV-5 (Operational Status)

Date of Closure: See Table IV-5 (Operational Status)

Waste Managed: See Table IV-5

Release Controls: See Table IV-5

History of Releases: See Table IV-5

Information Needs: See Table IV-5

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-5

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
39	LF-34 Unit is located on corner of Avonics Loop and Pocahontas St.	Unknown	Solvents, paint waste	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
40	LF-51 Unit is located on the corner of Avonics Loop and Pocahontas St.	Unknown	Synthetic oils, solvents, paint (bermed areas)	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
41	LF-53A (NW) is located on corner of Avonics Loop and Pocahontas St.	Unknown	Paint on paper	Unknown	22, 13	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
42	LF-53B (E) is located on corner of Avonics Loop and Pocahontas St.	Unknown	Solvents	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
43	V-4 Unit	Unknown	Pasa gel, alodine	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials

TABLE IV-5 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
44	V-28A (W) is located between Pocahontas St. and Hornet St.	Unknown	Cleaning shop waste	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
45	V-28B (W) is located between Pocahontas St. and Hornet St.	Unknown	Coolants	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
46	V-28C (NW) is located between Pocahontas St. and Hornet St.	Unknown	Plating shop wastes	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
47	V-28D (NW) is located between Pocahontas St. and Hornet St.	Unknown	Paint shop waste (bermed area)	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
48	V-28E (SE) is located between Pocahontas St. and Hornet St.	Unknown	Cold wash, ethylacetale	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials

TABLE IV-5 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
49	V-28F (SE) is located between Pocahontas St. and Hornet St.	Unknown	Varsol	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
50	V-28G (NE) is located between Pocahontas St. and Hornet St.	Unknown	Hydraulic fluid	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
51	V-31 is located between Pocahontas St. and Hornet St.	Unknown	Oils	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
52	V-38A is located between Pocahontas St. and Hornet St.	Unknown	Resin cups	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
53	V-38 B (SF) is located between Pocahontas St. and Hornet St.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity and type of wastes 6. History of releases 7. Unit size, capacity and construction of materials

TABLE IV-5 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
54	V-38 (C) Unit	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity and type of wastes 6. History of releases 7. Unit size, capacity and construction of materials
55	V-42 is located between Pocahontas St. and Hornet St.	Unknown	Oils, coolant	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
56	V-88 is located on corner of Avonic Loop and Hornet St.	Unknown	Oils, solvents, sealants, dichloromethane	Unknown	11, 22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
57	V-114 is located at the Ranger Avenue Area	Unknown	Surface treatment wastes	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
58	V-143 Unit	Unknown	Paint, paint thinner	Unknown	11, 22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials

TABLE IV-5 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
59	V-147 A (SE) is located on the corner of Fourth Avenue and Bellinger	Unknown	Alodine	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
60	V-147 B (S) is located on the corner of Fourth Ave. and Bellinger	Unknown	Hydraulic oil, solvents	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
61	LP-20 A (N) is located where West "C" St. dead-ends with Third Avenue	Unknown	Cleaning shop waste, plating shop waste	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
62	LP-20 B (NE) is located where West "C" St. dead-ends with Third Avenue	Unknown	Oils	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
63	LP-23 is located at West "D" St. and Third Ave. (Plating Shop)	Unknown	Plating shop waste	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials

TABLE IV-5 (Cont'd)

CONTAINER STORAGE AREAS - NAVAL AVIATION DEPOT

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
64	LP-167 is located on Air Terminal Rd., Mac Terminal Area	Unknown	Hydraulic fluids, oils	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
65	LP-178/179 is located at West "D" St. and Third Ave. Waste Water Treatment Plant Storage Area - 55-gallon drums	Unknown	Treatment plant waste, sulfuric acid, sodium hydroxide	Fenced/locked gate. Drums are stacked on wooden pallets (not exceeding 2 drums). The release history is unknown.	22, 31, 33	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
66	LP-201 is located at Air Terminal Rd., Mac Terminal Area	Unknown	Oils	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials
67	U-132 is located at West "D" St. and Third Ave.	Unknown	Freon wash waste, hydraulic fluid, coolanol	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Other waste types managed 3. Release controls 4. Disposition of wastes 5. Quantity of wastes 6. History of releases 7. Unit size, capacity and construction of materials

68-69. UNIT NAME: Container Storage Areas - HQ and
Service Battalion Fleet Marine Force

Unit Description: See Table IV-6

Date of Start-up: See Table IV-6 (Operational Status)

Date of Closure: See Table IV-6 (Operational Status)

Waste Managed: See Table IV-6

Release Controls: See Table IV-6

History of Releases: See Table IV-6

Information Needs: See Table IV-6

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-6

CONTAINER STORAGE AREAS - HQ and SERVICE
BATTALION FLEET MARINE FORCE

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
68	M-65 Unit is located off Fechteler St.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates wastes managed 2. Wastes managed 3. Release controls 4. Quantity of wastes 5. History of releases 6. Disposition of wastes 7. Unit size, capacity and construction of materials
69	MCA-9 Unit is located off Seventh Ave.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Wastes managed 3. Release controls 4. Quantity of wastes 5. History of releases 6. Disposition of wastes 7. Unit size, capacity and construction of materials

70-72. UNIT NAME: Container Storage Areas -
 Armed Forces Staff College

Unit Description: See Table IV-7

Date of Start-up: See Table IV-7 (Operational Status)

Date of Closure: See Table IV-7 (Operational Status)

Waste Managed: See Table IV-7

Release Controls: See Table IV-7

History of Releases: See Table IV-7

Information Needs: See Table IV-7

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-7

CONTAINER STORAGE AREAS - ARMED FORCES STAFF COLLEGE

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
70	Building SC-401 A Unit is located at the rear of the building on New Georgia Ave.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Wastes managed 3. Release controls 4. Quantity of wastes 5. History of releases 6. Disposition of wastes 7. Unit size, capacity and construction of materials
71	Building SC-401 B Unit is located in front of the building on New Georgia Ave.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Wastes managed 3. Release controls 4. Quantity of wastes 5. History of releases 6. Disposition of wastes 7. Unit size, capacity and construction of materials
72	Building SC-401 C Unit is located at the Pistol Range on New Georgia Ave.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Wastes managed 3. Release controls 4. Quantity of wastes 5. History of releases 6. Disposition of wastes 7. Unit size, capacity and construction of materials

73. UNIT NAME: Container Storage Areas -
 Fleet Training Center

Unit Description: See Table IV-8

Date of Start-up: See Table IV-8 (Operational Status)

Date of Closure: See Table IV-8 (Operational Status)

Waste Managed: See Table IV-8

Release Controls: See Table IV-8

History of Releases: See Table IV-8

Information Needs: See Table IV-8

*"Unknown" indicates that the information could not be obtained
from the file material.

TABLE IV-8

CONTAINER STORAGE AREAS - FLEET TRAINING CENTER

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
73	Fire Fighting School Unit is located on Baker St.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none">1. Start-up/Closure dates2. Wastes managed3. Release controls4. Quantity of wastes5. History of releases6. Disposition of wastes7. Unit size, capacity and construction of materials

74-84. UNIT NAME: Container Storage Areas - Other

Unit Description: See Table IV-9

Date of Start-up: See Table IV-9 (Operational Status)

Date of Closure: See Table IV-9 (Operational Status)

Waste Managed: See Table IV-9

Release Controls: See Table IV-9

History of Releases: See Table IV-9

Information Needs: See Table IV-9

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-9

CONTAINER STORAGE AREAS - OTHER

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
74	Q Area Drum Storage Yard (IAS Site 3) is located in the northwestern corner of SPNC. The earthen yard was created by a fill operation in the 1950s. Stormwater drainage flows into Elizabeth River and Willoughby Bay	Active since 1950s	Drums contain petroleum products, chlorinated organic solvents, paint thinners, formaldehyde, and pesticides	IAS survey indicated many drums to be leaking. The release controls are unknown.	58	<ol style="list-style-type: none"> 1. Release controls 2. Additional wastes managed 3. Disposition of wastes 4. Size of unit 5. Additional releases 6. Any remedial action taken
75	Transformer Storage Area (IAS Site 4) is located behind Building P-71. Transformer oil was drained onto the ground in this area. The area is currently covered with gravel.	Inactive 1940s-1978	Transformer oil	IAS indicated dark stains on visible soil. The release controls are unknown.	58	<ol style="list-style-type: none"> 1. Actual start-up/closure dates 2. Release controls 3. Disposition of wastes 4. Unit size 5. Identify any other wastes managed 6. Additional releases 7. Any remedial action taken
76	Former NM Hazardous Waste Storage Area (IAS Site 18). The outside area is located to the east of Taussig cans storage buildings.	Inactive 1975-1979	Waste oils, metal plating solutions and sludges, chlorinated organic solvents, acids, paint stripping solutions	In 1979 intentional spillage occurred into the drainage canal. The contaminated soil was excavated and placed in piles nearby. Groundwater monitoring occurred for 55 months and found no significant contamination. The release controls are unknown.	58, 48, 50	<ol style="list-style-type: none"> 1. Action start-up/closure dates 2. Release controls 3. Disposition of waste 4. Unit size and capacity 5. Groundwater sampling results, and dates.

TABLE IV-9 (Cont'd)

CONTAINER STORAGE AREAS - OTHER

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
77	Camp Allen Hazardous Waste Management Area	Unknown	Hydraulic fluids, grease and oil	In 1989 two 55-gallon drums containing PCBs ruptured during unloading spilling 40 gallons onto 30'x 40' area. Release controls are unknown.	31, 37	<ol style="list-style-type: none"> 1. Start-up/Closure states 2. Other waste types and quantities managed 3. Release controls 4. History of releases 5. Unit description including dimensions 6. Disposition of wastes 7. Any remedial action taken
78	SDA-204 Hazardous Waste Management Area is used to store non-regulated materials/re-sales in a 800 ft. x 200 ft. area. The building is constructed with metal sheathing walls and roof, and a concrete floor. Metal shelving is used for storage.	Active. Start-up date is unknown.	Non-regulated materials	The unit is located indoors. There are no dikes on the concrete floor. The history of releases is unknown.	11, 13	<ol style="list-style-type: none"> 1. Start-up date 2. Additional release controls 3. Waste types 4. Disposition of wastes 5. History of releases
79	SDA-211 Hazardous Waste Management Area was originally listed on the Part A Application as a hazardous waste storage area. However, it has been determined that no hazardous wastes were ever stored at this unit.	Unknown	Unknown	Unknown	11, 25, 40, 54	<ol style="list-style-type: none"> 1. Start-up/Closure dates 2. Waste types/Quantities 3. Release controls 4. History of releases 5. Disposition of wastes 6. Unit size, capacity and construction of materials
80	No. 93300 (Paint Shop) Hazardous Waste Accumulation area is located inside Building V-28.	Active. Start-up date is unknown.	Paint filters	The unit has a concrete base which is diked and sloped, allowing any leakage to enter a sump. The release history is unknown.	13, 20, 31	<ol style="list-style-type: none"> 1. Start-up date 2. Additional waste types/quantities 3. History of releases 4. Disposition of wastes 5. Unit description-size/capacity

TABLE IV-9 (Cont'd)

CONTAINER STORAGE AREAS - OTHER

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
81	Building LP-27 Hazardous Waste Accumulation Area	Unknown	Unknown	Unknown	31	<ol style="list-style-type: none"> 1. Unit description-size, capacity, construction 2. Start-up/Closure dates 3. Waste types/Quantity 4. Release controls 5. History of releases
82	Building LP-28 Hazardous Waste Accumulation Area	Unknown	Unknown	Unknown	31	<ol style="list-style-type: none"> 1. Unit description-size, capacity, construction 2. Start-up/Closure dates 3. Waste types/Quantity 4. Release controls 5. History of releases
83	Building W-318 PCB Storage Area is utilized for out- of-service PCB electrical items. This unit is under control of NSC Norfolk	Unknown	PCBs	The unit has a concrete floor and is bermed. The history of releases is unknown.	58	<ol style="list-style-type: none"> 1. Unit description-size, capacity, construction 2. Start-up/Closure dates 3. Waste types/Quantity 4. History of releases
84	Building X-318 PCB Storage Area contains out-of- service transformers	Unknown	PCBs	The unit is located indoors, and contains a concrete floor which is bermed. A fence surrounds the building. Release history is unknown.	58	<ol style="list-style-type: none"> 1. Unit description-size, capacity, construction 2. Start-up/Closure dates 3. Waste types/Quantity 4. History of releases

85-110. UNIT NAME: Tanks

Unit Description: See Table IV-10

Date of Start-up: See Table IV-10 (Operational Status)

Date of Closure: See Table IV-10 (Operational Status)

Waste Managed: See Table IV-10

Release Controls: See Table IV-10

History of Releases: See Table IV-10

Information Needs: See Table IV-10

*"Unknown" indicates that the information could not be obtained from the file material.

TABLE IV-10

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
85	SIMA Waste Tank No. 1 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. this tank is located outside Mechanical Equipment Room #1. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
86	SIMA Waste Tank No. 2 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. This tank is located outside 31E. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
87	SIMA Waste Tank No. 3 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. This tank is located outside 51F. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases

TABLE IV-10 (Cont'd)

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
88	SIMA waste Tank No. 4 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. This tank is located outside 64A. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
89	SIMA Waste Tank No. 5 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. This tank is located outside Ordnance/FC Repair Shop. the unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
90	SIMA Waste Tank No. 6 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. This tank is located outside 72D. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases

TABLE IV-10 (Cont'd)

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
91	SIMA Waste Tank No. 7 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of S A. This tank is located outside 31C. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
92	SIMA Waste Tank No. 8 is one of eight in-ground 1000 gallon waste drain tanks situated around the outer perimeter of SIMA. this tank is located outside Mechanical Equipment Room #6. The unit is 4 feet in diameter by 10 1/2 feet long and is constructed of heavily coated bitumastic reinforced fiberglass cloth. Four 2,000 pound concrete anchors hold the tanks in place.	Unknown	Unknown	Unknown	22	<ol style="list-style-type: none"> 1. Operational status 2. Start-up/closure dates 3. Waste types and quantities 4. Source of wastes 5. Disposition of wastes 6. Release controls 7. History of releases
93	Heptane UST No. 1 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/capacity of unit 2. Release controls 3. Operational status 4. Start-up/closure dates 5. Disposition of wastes 6. History of releases
94	Heptane UST No. 2 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/capacity of unit 2. Release controls 3. Operational status 4. Start-up/closure dates 5. Disposition of wastes 6. History of releases

TABLE IV-10 (Cont'd)

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
95	Heptane UST No. 3 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
96	Heptane UST No. 4 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
97	Heptane UST No. 5 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
98	Heptane UST No. 6 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
99	Heptane UST No. 7 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
100	Heptane UST No. 8 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases

TABLE IV-10 (Cont'd)

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
101	Heptane UST No. 9 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
102	Heptane UST No. 10 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
103	Heptane UST No. 11 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
104	Heptane UST No. 12 was managed by NARF. The unit was scheduled for removal in 1987.	Unknown	Heptane stored until sent off-site to a DOE laboratory	Unknown	31, 39	<ol style="list-style-type: none"> 1. Size/Capacity of unit 2. Release controls 3. Operational status 4. Start-up/Closure dates 5. Disposition of wastes 6. History of releases
105	V-93-1 Waste Oil Tank collects waste oil from various shops at NAVAIREWORKFAC Norfolk for temporary storage. Tank capacity is 4,500 gallons.	Active	Waste oils	Unknown	58	<ol style="list-style-type: none"> 1. Location of unit 2. Start-up date 3. Release controls 4. Disposition of wastes 5. History of releases
106	V-93-2 Waste Oil Tank collects waste oil from various shops at NAVAIREWORKFAC Norfolk for temporary storage. Tank capacity is 4,500 gallons.	Active	Waste oils	Unknown	58	<ol style="list-style-type: none"> 1. Location of unit 2. Start-up date 3. Release controls 4. Disposition of wastes 5. History of releases

TABLE IV-10 (Cont'd)

TANKS

<u>SWMU Number</u>	<u>Unit Description</u>	<u>Operational Status</u>	<u>Wastes Managed</u>	<u>Release Control/ History of Releases</u>	<u>Reference</u>	<u>Information Needs</u>
107	V-93-3 Waste Oil Tank collects waste oil from various shops at NAVAIREWORKFAC Norfolk for temporary storage. Tank capacity is 4,500 gallons.	Active	Waste oils	Unknown	58	<ol style="list-style-type: none"> 1. Location of unit 2. Start-up date 3. Release controls 4. Disposition of wastes 5. History of releases
108	Bldg. V-49 Waste Oil Bowser is a waste oil accumulation tank located in Bldg. V-49. It manages waste oil generated during maintenance of material handling equipment. Waste oil is periodically hauled to the NSC-CI waste oil reclamation facility.	Unknown	Waste Oil	Unknown	58	<ol style="list-style-type: none"> 1. Dimensions, capacity, materials of construction 2. Operational status 3. Start-up/closure dates 4. Release controls 5. History of releases
109	Engine and Propeller Repair Shops Waste Oil Bowser is a waste oil accumulation tank located in the vicinity of Bldgs. SP-313, SP-38, and SP-10. It manages waste oil, hydraulic fluid, and 1,1,1-Trichloroethane generated during repair operations. These wastes are hauled to the NSC-CI waste oil facility.	Unknown	Waste oil, hydraulic fluid, 1,1,1-Trichloroethane	Unknown	58	<ol style="list-style-type: none"> 1. Dimensions, capacity, materials of construction 2. Operational status 3. Start-up/closure dates 4. Release controls 5. History of releases
110	Bldgs. SP-145 and SP-147 Waste Oil Bowser is a waste oil accumulation tank located in the vicinity of Bldgs. SP-145 and Sp-147. It manages waste oil generated during maintenance of support hardware. Waste oil is periodically hauled to the NSC-CI waste oil reclamation facility.	Unknown	Waste Oil	Unknown	58	<ol style="list-style-type: none"> 1. Dimensions, capacity, materials of construction 2. Operational status 3. Start-up/closure dates 4. Release controls 5. History of releases

111. UNIT NAME: Building LP-178/179 Industrial Wastewater Treatment Plant

Unit Description: This unit is reportedly operated by the Navy Public Works Center (PWC), is 15 years old and was renovated in 1982. The unit provides waste treatment for chrome, cyanide, phenols and mixed chemicals from base operations including plating processes (Reference 31). The wastewater is treated using a chemical/physical process before being discharged into Hampton Roads POTW. The treated dewatered sludges are accumulated in roll-off containers and sent to hazardous waste disposal site in South Carolina (Reference 13).

Date of Start-up: This unit began operating in 1973 (Reference 13).

Date of Closure: This unit is currently active (Reference 13).

Wastes Managed: This system is reportedly used to treat wastewater generated from various base operations, including plating processes (Reference 13). The plant treats chrome, cyanide, mixed chemicals and phenols (Reference 70). The unit effluent averages 100,000 gallons a day (Reference 58).

Release Controls: No release controls were identified through review of the available file material.

History of Releases: No releases were identified through review of the available file material.

111. UNIT NAME:

Building LP-178/179 Industrial
Wastewater Treatment Plant (Cont'd)

Information Needs:

1. Identify the size/capacity of the unit.
2. Identify unit construction materials.
3. Identify any additional waste types managed by unit.
4. Identify unit release controls.
5. Identify any known or suspected history of releases.
6. Identify any unit permits.

112. UNIT NAME: Fire Fighting Industrial Wastewater Treatment Plant

Unit Description: This treatment plant, reportedly operated by the Fleet Training Center, treats oily wastewater and AFFR (Reference 70).

Date of Start-up: It cannot be determined when this unit began operating from the file material.

Date of Closure: It cannot be determined if this unit is still active from the file material.

Wastes Managed: This system is used to treat oily wastewater and AFFR (Reference 70).

Release Controls: No release controls were identified through review of the available file material.

History of Releases: No releases were identified through review of the available file material.

Information Needs: 1. Identify unit size, construction materials, and process information.

 2. Identify the unit start-up and closure dates.

 3. Identify any additional waste types managed by the unit.

 4. Identify the unit release controls.

 5. Identify any known or suspected releases from this unit.

 6. Identify any unit permits.

 7. Identify the disposition of the wastes.

113. **UNIT NAME:** Salvage Fuel Boiler Plant

Unit Description: This unit, reportedly designated by the facility as Z-309, began operating over 20 years ago (Reference 32). The unit's function was to burn salvage fuel supplemented with residential and office refuse and to generate steam (Reference 32). In 1976, the boiler was reportedly upgraded with electrostatic precipitators to meet air pollution control standards (Reference 2).

Date of Start-up: This unit reportedly began burning refuse in 1967. The Navy ceased operating the boiler in 1986 due to violations of the State of Virginia air permit (Reference 32). The facility is now considering reactivating the plant for solid waste combustion (Reference 2).

Date of Closure: This unit reportedly ceased operation in September 1986 (Reference 32).

Wastes Managed: This system reportedly managed salvage fuel supplemented with residential and office refuse (Reference 2).

Release Controls: No release controls were identified through review of the available file materials.

History of Releases: There is no specific evidence of any releases from this system from the file material. However, it is reported that due to exceedances of the State of Virginia air permit standards, the boiler was shut down in 1986 (Reference 32).

114. UNIT NAME: Incinerator (Brig Location)

Unit Description: This unit is reportedly located in Building CD-2 (Reference 58). No other information is available at this time

Date of Start-up: The start-up date cannot be determined from the file material.

Date of Closure: This unit is reported to be presently active (Reference 58).

Wastes Managed: This system reportedly manages 150 pounds of infectious wastes annually (Reference 58).

Release Controls: Infectious wastes are reportedly double wrapped in plastic bags (Reference 58). Other release controls are unknown.

History of Releases: No releases were identified through review of the available file material.

Information Needs: 1. Identify the unit dimensions, size, and construction materials.

 2. Identify the start-up date of the unit.

 3. Identify specific waste types managed.

 4. Identify how the wastes are transported to the unit.

 5. Identify any additional release controls.

 6. Identify any known or suspected releases.

115. **UNIT NAME:** Pesticide Disposal Site (IAS Site 5)
- Unit Description:** This unit reportedly consists of a french drain located southeast of Building V-95. The drain includes a 28-inch diameter culvert placed vertically into a gravel filled hole in the ground. This is used for disposal of pesticides generated in the former pest control shop (Building Z-194). The shop operated from the 1960s until 1973 (Reference 58).
- Date of Start-up:** The french drain has been in operation since the 1960s (Reference 58).
- Date of Closure:** This unit has reportedly been inactive since 1973 (Reference 58).
- Wastes Managed:** This unit managed pesticide rinse water including chlordane, malathion, and DDT. Approximately 100 gallons per week of rinse water were reportedly disposed of at the unit (Reference 58).
- Release Controls:** No release controls were identified through review of the available file material.
- History of Releases:** No releases were identified through review of the available file material.
- Information Needs:** 1. Identify unit size and construction materials.
2. Identify actual start-up/closure dates.
3. Identify any additional waste types managed by this unit.
4. Identify any unit release controls.
5. Identify any known or suspected unit releases.
6. Identify the disposition of the wastes after collection.

116. UNIT NAME:

Apollo Fuel Disposal Sites
(IAS Site 10)

Unit Description:

This unit reportedly consists of two areas which were used to dispose of fuel component drained from Apollo spacecraft capsules. The fuel component, mono-methylhydrazine, was drained from the capsules into 55-gallon drums. The drum contents were then poured onto the ground in two areas (Reference 58).

The first area, approximately 40 feet long and 20 feet wide and fenced, was located north of the Taussig can area. This site accounted for three or four drums of the fuel component. The area was abandoned because of its location near a drainage ditch (Reference 58).

The fence was moved to a second area near Building MN-37. Again, three or four drums of the fuel component were poured out onto the ground (Reference 58).

Date of Start-up:

This unit reportedly began accepting wastes in 1967 (Reference 58).

Date of Closure:

The unit reportedly ceased accepting wastes in 1969 (Reference 58).

Wastes Managed:

The unit managed fuel component, monomethylhydrazine. Each site reportedly managed approximately 3-4 55-gallon drums of this waste (Reference 58).

Release Controls:

No release controls were identified through review of the available file material.

History of Releases:

This unit was designed to release to the environment. Inspection of these area during the IAS, however, indicated no stressed vegetation.

116. UNIT NAME:

Apollo Fuel Disposal Sites
(IAS Site 10) (Cont'd)

Information Needs:

1. Identify the area of the second site.
2. Identify specific start-up/closure dates for each site.
3. Identify any other wastes types managed by this unit.
4. Identify any unit release controls.
5. Identify any additional releases to the environment.

117. UNIT NAME: Alleged Mercury Disposal Site (IAS Site 12)

Unit Description: This site was reportedly found as a result of a 1976 report that indicated that approximately 150 10-pound glass bottles containing mercury were dumped off the seawall near Building V-88 into Willoughby Bay (Reference 58).

Date of Start-up: This incident/unit reportedly took place in the late 1960s (Reference 58).

Date of Closure: The closure date cannot be determined from the file material.

Wastes Managed: The unit manages 150 10-pound bottles of elemental mercury (Reference 58).

Release Controls: No release controls were identified through review of the available file material.

History of Releases: This unit was designed to release to the environment. Sediment samples reportedly collected from the bay contained no containers or mercury concentration (Reference 58).

Information Needs: 1. Identify the unit size.
 2. Identify a specific start-up date.
 3. Identify if this unit is considered closed.
 4. Identify any unit release controls.
 5. Obtain results from the surface water sampling activities.

118. UNIT NAME: Underground Oil Spill - Piers 4,5,7
(IAS Site 14)

Unit Description: This unit reportedly resulted from an oil seepage from behind the seawall close to piers 4,5, and 7. The seepage was a result of leaks in the pier fuel distribution system. A french drain was installed behind the seawall to recover the oil (Reference 58).

Date of Start-up: This incident reportedly took place in 1979 (Reference 58).

Date of Closure: The closure date cannot be determined from the file material.

Wastes Managed: The unit reportedly managed 100 gallons/day of oil for an unknown period of time. (Reference 58).

Release Controls: No release controls were identified through review of the available file material.

History of Releases: Seepage from this unit resulted in releases to the Elizabeth River. A french drain was reportedly installed to recover the oil seepage. Approximately 50,000 gallons of oil was recovered. The french drain is periodically checked for accumulation of oil (Reference 58).

Information Needs:

1. Identify the area size of the spill.
2. Identify specific start-up/closure dates.
3. Identify any additional wastes managed.
4. Identify any release controls.
5. Obtain additional information on the effectiveness of spill remediation activities.

119. UNIT NAME: Underground Oil Spill - Piers 20,21,22
 (IAS Site 15)

Unit Description: This site reportedly resulted from
 intermittent oil seepages from behind
 the seawall close to piers 20,21, and
 22. Soil contamination was found
 behind the seawall. The contaminated
 soils were removed at a later
 unspecified date (Reference 59).

Date of Start-up: This incident reportedly took place in
 1979 (Reference 58).

Date of Closure: The closure date cannot be determined
 from the file material.

Wastes Managed: The unit reportedly managed oil, the
 constituents of which are unknown
 (Reference 58).

Release Controls: No release controls were identified
 through review of the available file
 material.

History of Releases: This unit released to both the
 surrounding soils and to Elizabeth
 River. After removal of the
 contaminated soils, no further seepage
 has reportedly occurred. Dates of
 removal and other observations are not
 known (Reference 58).

Information Needs: 1. Identify the unit responsible for
 the oil seepage.
 2. Identify the area of the spill.
 3. Identify specific start-up/closure
 dates.
 4. Identify any additional wastes
 managed.
 5. Identify any release controls.
 6. Obtain information of effectiveness
 of spill remediation activities.

120. **UNIT NAME:** Slag Pile (IAS Site 2)
- Unit Description:** The slag pile, located near the Taussig Cans, reportedly encompasses approximately two acres. The pile was generated by aluminum smelting operations in the 1950s and 1960s (Reference 58).
- Date of Start-up:** The pile reportedly began accumulating wastes in the 1950s (Reference 58).
- Date of Closure:** The closure date cannot be determined from the file material.
- Wastes Managed:** The unit reportedly managed aluminum smelting wastes consisting of various metals, primarily steel (Reference 58).
- Release Controls:** No release controls were identified through review of the available file material.
- History of Releases:** Storm water drainage from this unit flows northward toward a creek canal, which discharges into Mason Creek and ultimately into Willoughby Bay (Reference 58).
- Information Needs:** 1. Identify exact start-up/closure dates.
2. Identify any additional wastes managed.
3. Identify any release controls.
4. Identify any known or suspected unit releases.

121. UNIT NAME: Building A-80 Vehicle Wash Rack 1

Unit Description: This unit is located in Building A-80 (Reference 58). It is one of two vehicle wash racks in the building and is used for washing heavy equipment (Reference 58). An oil-water separator is being installed to treat the wastewater generated in this unit prior to discharge of the wastewater to the sanitary sewer system (Reference 58).

Date of Start-up: The start-up date cannot be determined from the available file material.

Date of Closure: This unit is currently in operation (Reference 58).

Waste Managed: This unit manages wastewater generated by the washing of heavy equipment (reference 58).

Release Controls: An oil-water separator is being installed at this unit to provide treatment of the wastewater prior to discharge to the sanitary sewer system (Reference 58).

History of Releases: No evidence of release was identified through review of the available file material.

Information Needs: 1. Identify the unit size/capacity and materials of construction.

 2. Identify the unit start-up date.

 3. Identify any additional unit release controls.

 4. Identify any known or suspected unit releases.

 5. Indicate whether the oil-water separator has been installed.

122. UNIT NAME: Building A-80 Vehicle Wash Rack 2

Unit Description: This unit is located in Building A-80 (Reference 58). It is one of two vehicle wash racks in the building and is used for washing heavy equipment (Reference 58). An oil-water separator is being installed to treat the wastewater generated in this unit prior to discharge of the wastewater to the sanitary sewer system (Reference 58).

Date of Start-up: The start-up date cannot be determined from the available file material.

Date of Closure: This unit is currently in operation (Reference 58).

Waste Managed: This unit manages wastewater generated by the washing of heavy equipment (reference 58).

Release Controls: An oil-water separator is being installed at this unit to provide treatment of the wastewater prior to discharge to the sanitary sewer system (Reference 58).

History of Releases: No evidence of release was identified through review of the available file material.

Information Needs: 1. Identify the unit size/capacity and materials of construction.

 2. Identify the unit start-up date.

 3. Identify any additional unit release controls.

 4. Identify any known or suspected unit releases.

 5. Indicate whether the oil-water separator has been installed.

123. UNIT NAME: Building A-81 Vehicle Wash Rack 1

Unit Description: This unit is located in Building A-81 (Reference 58). It is used for washing automobiles and light trucks (Reference 58). An oil-water separator is being installed to treat the wastewater generated in this unit prior to discharge of the wastewater to the sanitary sewer system (Reference 58).

Date of start-up: The start-up date cannot be determined from the available file material.

Date of Closure: This unit is currently in operation (Reference 58).

Waste Managed: This unit manages wastewater generated by the washing of automobiles and light trucks (Reference 58).

Releases Controls: An oil-water separator is being installed at this unit to provide treatment of the wastewater prior to discharge to the sanitary sewer system (Reference 58).

History of Releases: No evidence of release was identified through review of the available file material.

Information Needs: 1. Identify the unit size/capacity and materials of construction.

 2. Identify the unit start-up date.

 3. Identify any additional unit release controls.

 4. Identify any known or suspected unit releases.

 5. Indicate whether the oil-water separator has been installed.

124. UNIT NAME: Building V-28 Abandoned Plating Shop
(Tanks and Containers)

Unit Description: This unit is an abandoned metal plating shop located in Building V-28 and contains process tanks and containers (Reference 3). During a RCRA compliance inspection in September 1989, formerly used materials including plating baths, plating solution residues, plating rinses, and raw materials were observed to be abandoned in process tanks and in shop areas (Reference 3). Wastes were also observed to be stored in containers in the shop (Reference 3). According to the 1983 Initial Assessment Study, the contents of concentrated solution tanks, such as metal plating solutions and acid pickling liquor, including tank bottom sludges, are drummed and contract hauled off-site to an EPA-approved hazardous waste disposal facility (Reference 58).

Date of Start-up: The start-up date cannot be determined from the file material.

Date of Closure: This unit ceased operation in about 1988 (Reference 3).

Waste Managed: This unit manages waste plating rinses, metal plating solutions, plating baths, waste acid solution, and cyanide plating salts from metal plating operations (Reference 3).

Release Controls: A concrete sump provides secondary containment for plating operations tanks (Reference 4). This unit is located indoors (Reference 3).

History of Releases: During the September 1989 RCRA compliance inspection, materials were observed to have leaked onto the floor and several containers were in advanced states of deterioration (Reference 3).

124. UNIT NAME:

Building V-28 Abandoned Plating Shop
(Tanks and Containers) (Cont'd)

Information Needs:

1. Identify the size, dimensions, and materials of construction of the plating shops, process tanks, and containers.
2. Identify exact unit start-up/closure dates.
3. Identify any known or suspected unit releases.
4. Indicate whether residues remain in the tanks and containers.
5. Indicate whether units have been removed.

125. UNIT NAME: Building LP-20 Abandoned Plating Shop

Unit Description: This unit is an abandoned metal plating shop located in Building LP-20 and containing tanks and containers (Reference 3). During a RCRA compliance inspection in September 1989, formerly used materials including plating baths, plating solution residues, plating rinses and raw materials were observed to be abandoned in process tanks and in shop areas (Reference 3). Wastes were also observed to be stored in containers in the shop (Reference 3). According to the 1983 Initial Assessment Study, the contents of solution tanks, such as metal plating solutions and acid pickling liquor, including tank bottom sludges, are drummed and contract hauled off-site to an EPA-approved hazardous waste disposal facility (Reference 58).

Date of Start-up: The start-up date could not be determined from the available file material.

Date of Closure: This unit ceased operation in about 1987 (Reference 3).

Waste Managed: This unit manages waste plating rinses, metal plating solutions, plating baths, waste acid solutions, and cyanide plating salts from metal plating operations (Reference 3).

Release Controls: A concrete sump provides secondary containment for plating tanks (Reference 4). This unit is located indoors (Reference 3).

History of Releases: During the September 1989 RCRA compliance inspection, materials were observed to have leaked onto the floor and several containers were in advanced states of deterioration (Reference 3).

125. UNIT NAME:Building LP-20 Abandoned Plating Shop
(Cont'd)Information Needs:

1. Identify the size, dimensions, and materials of construction of the plating shops, process tanks, and containers.
2. Identify exact unit start-up/closure dates.
3. Identify any known or suspected unit releases.
4. Indicate whether residues remain in the tanks and containers.
5. Indicate whether units have been removed.

126. UNIT NAME: Building V-28 Oil-Water Separator

Unit Description: This indoor unit is an oil-water separator located in the vicinity of the Paint Shop #93300 Waste Accumulation Area (Reference 31). This unit manages spilled or leaking material from the accumulation area (Reference 31). The material flows into a sump which enters the oil-water separator prior to discharge to the IWWTP (Reference 31).

Date of Start-up: The start-up date cannot be determined from the available file material.

Date of Closure: The closure date cannot be determined from the available file material.

Waste Managed: This unit manages spilled/leaked material from the Paint Shop #93300 Hazardous Waste Accumulation Area (Reference 31).

Release Controls: This unit discharges to the IWWTP (Reference 31).

History of Releases: No evidence of release was identified through review of the available file material.

Information Needs:

1. Identify the dimensions, capacity, and materials of construction of the unit.
2. Identify unit start-up/closure dates.
3. Identify wastes managed in the unit.
4. Identify any additional unit release controls.
5. Identify any known or suspected unit releases.

127. UNIT NAME: Building V-28 Dumpster
- Unit Description: This indoor unit is a dumpster located in the vicinity of the Paint Shop #93300 Hazardous Waste Accumulation Area (Reference 31). During a June 1987 RCRA compliance inspection, standing water, paint sludge, and paint cans were observed in the unit (Reference 31).
- Date of Start-up: The start-up date cannot be determined from the available file material.
- Date of Closure: The start-up date cannot be determined from the available file material.
- Waste Managed: This unit was observed to manage standing water, paint cans, and paint sludge (Reference 31).
- Release Controls: No release controls were identified for this unit through review of the available file material.
- History of Releases: No evidence of release was identified through review of the available file material.
- Information Needs: 1. Identify the dimensions, capacity, and materials of construction of the dumpster.
2. Identify unit start-up/closure dates.
3. Identify any additional wastes managed in the unit.
4. Identify any unit release controls.
5. Identify any known or suspected unit releases.

128. **UNIT NAME:** Instrument Repair Shop Drains

Unit Description: This indoor unit consists of sink drains located in the Instrument Repair Shop in Building V-60 (Reference 58). The unit was used for flushing low-level radium wastes from ships dials (Reference 58). Drain pipes and drain traps became contaminated as a result of the radium flushing and drain traps were plugged with concrete to prevent release of radium to the storm sewer system (Reference 58). The contaminated plumbing was cleaned up following the award of the clean-up contract in May 1982 (Reference 58).

Date of Start-up: This unit began operating in the 1940s (Reference 58).

Date of Closure: This unit ceased operation in 1956 (Reference 58).

Waste Managed: This unit managed unknown quantities of low-level radium wastes from ships dials (Reference 58).

Release Controls: This unit leads to drain traps which lead to the storm sewer system and ultimately to Willoughby Bay (Reference 58). Drain traps were plugged with concrete to avoid flushing the radium to the sewer system (Reference 58). Plugs were removed when the plumbing was cleaned up (Reference 58).

History of Releases: No evidence of release was identified through review of the available file material.

128. UNIT NAME:

Instrument Repair Shop Drains (Cont'd)

Information Needs:

1. Identify the number of drains, drain size, and dimensions.
2. Identify exact unit start-up/closure dates.
3. Identify any additional wastes managed in the unit.
4. Identify any known or suspected unit releases.

129. **UNIT NAME:** Past Industrial Wastewater Outfalls
(IAS Site 13)

Unit Description: This unit is a storm sewer system located in the NAVAIREWORKFAC NORFOLK area that discharges to Willoughby Bay (Reference 58). This unit was used for the discharge of numerous industrial wastewaters generated by operations in the area (Reference 58).

Date of Start-up: This unit began operating in the 1940s (Reference 58).

Date of Closure: This unit ceased operation in 1976 (Reference 58).

Waste Managed: This unit managed industrial wastewaters generated by NAVAIREWORKFAC NORFOLK including metals plating solutions and rinsewaters, paint stripping solutions, and degreasing compounds (Reference 58). These wastewaters contained chromium, cadmium, zinc, cyanide, oil and grease, and phenols (Reference 58).

Release Controls: This unit discharges into Willoughby Bay (Reference 58).

History of Releases: Industrial wastewaters were discharged to this unit and ultimately to Willoughby Bay from the 1940s to 1976 (Reference 58). Bottom sediment data for Willoughby Bay indicate metals contamination (Reference 58).

Information Needs:

1. Identify the size/capacity of the unit.
2. Identify any additional wastes managed.
3. Identify any additional sediment or water quality data.

130. **UNIT NAME:** Storm Sewer System

Unit Description: This unit consists of a network of underground pipes, culverts, and open ditches leading to over 90 outfalls that discharge to Willoughby Bay, Mason Creek, and the Elizabeth River (Reference 58). This unit manages primarily stormwater runoff, steam condensate, and noncontact cooling water (Reference 58). A NPDES permit has been issued for nine stormwater outfalls that discharge from the storm sewer system in the NAVAIREWORKFAC NORFOLK area to Willoughby Bay (Reference 58).

Date of Start-up: The start-up date cannot be determined from the available file material.

Date of Closure: This unit is currently in operation (Reference 58).

Waste Managed: This unit manages stormwater runoff, steam condensate and noncontact cooling water (Reference 58).

Release Controls: This unit is designed to discharge to Willoughby Bay, Mason Creek, and the Elizabeth River (Reference 58).

History of Releases: Violations of NPDES limitations have occurred sporadically (Reference 58).

Information Needs: 1. Identify any additional NPDES permits for stormwater outfalls.

 2. Identify the unit start-up date.

 3. Identify any additional wastes managed in the unit.

 4. Identify any known or suspected releases and NPDES permit violations.

131. **UNIT NAME:** Building V-49 Oil-Water Separator

Unit Description: This unit is an oil-water separator located adjacent to Building V-49 (Reference 58). The unit manages oily wastewater generated by the steam cleaning of material handling equipment for removal of oil, grease, and dirt (Reference 58). The oily wastewater reportedly drains to the oil-water separator, and the separator effluent is discharged to the Sanitary Sewer (SWMU 133) (Reference 58). Waste oil removed from the separator is hauled to the NSC-CI waste oil reclamation facility (Reference 58).

Date of Start-up: The start-up date cannot be determined from the available file material.

Date of Closure: The closure date cannot be determined from the available file material.

Waste Managed: This unit manages oily wastewater generated by the steam cleaning of material handling equipment (Reference 58).

Release Controls: This unit discharges to the sanitary sewer (Reference 58).

History of Releases: No evidence of release was identified through review of the available file material.

Information Needs: 1. Identify the dimensions, capacity, and materials of construction of the unit.

 2. Identify unit start-up/closure dates.

 3. Identify any additional unit release controls.

 4. Identify any known or suspected unit releases.

132. UNIT NAME: Building W-143 Dumpster
- Unit Description: This unit is a dumpster located in the vicinity of the print shop in Building W-143 (Reference 58). This unit manages cans of waste blanket wash, a hydrocarbon-freon mixture, and ink generated during printing operations (References 58).
- Date of Start-up: The start-up date cannot be determined from the available file material.
- Date of Closure: The closure date cannot be determined from the available file material.
- Waste Managed: This unit manages waste blanket wash, a hydrocarbon-freon mixture, and ink generated during printing operations (Reference 58). These wastes are placed in cans prior to disposal in the dumpster (Reference 58).
- Release Controls: No release controls were identified for this unit through review of the available file material.
- History of Releases: No evidence of release was identified through review of the available material.
- Information Needs: 1. Identify the dimensions, capacity, and materials of construction of the unit.
2. Identify the unit start-up/closure dates.
3. Identify any unit release controls.
4. Identify any known or suspected unit releases.

133. **UNIT NAME:** Sanitary Sewer System
- Unit Description:** This unit serves to convey all sanitary wastewater generated at NNB to the Hampton Roads Sanitation District (HRSD) sewage treatment plant (STP) (Reference 58). The unit also manages IWTP effluent, ship-to-shore discharges, and various industrial and laboratory wastewaters (Reference 58).
- Date of Start-up:** This unit began operating in 1946 (Reference 58).
- Date of Closure:** This unit is currently in operation (Reference 58).
- Waste Managed:** This unit manages primarily sanitary wastewater and IWTP effluent (Reference 58). The unit also receives ship-to-shore discharges and wastewaters from vehicle wash racks, wet curtain spray paint booths, photograph and X-ray developing, and laboratory sink drains (Reference 58). IWTP effluent managed by the unit averages about 100,000 gallons per day and the industrial wastewaters listed above average a combined flow of less than 15,000 gallons per day (Reference 58).
- Release Controls:** This unit discharges to the HRSD STP (Reference 58).
- History of Releases:** Wastewater flow from this unit to the HRSD STP has reportedly caused occasional operational problems at the HRSD STP due to discharges of oil to the sanitary sewer (Reference 58).
- Information Needs:** 1. Identify any additional wastes managed at the unit.
2. Identify any known or suspected unit releases.

AREAS OF CONCERN

A. Chemical Fire - Building X-136 (IAS Site 16)

According to the February 1983 Initial Assessment Study (IAS) conducted at Sewells Point Naval Complex, a chemical fire occurred in Building X-136 on July 18, 1979 (Reference 58). The fire reportedly occurred as a result of incompatible chemical storage, predominately of calcium hypochlorite and acids (Reference 58). During the fire fighting operation, approximately two tons of calcium hypochlorite were flushed down the storm drain with water and ultimately discharged to the Elizabeth River (Reference 58). The Virginia State Water Control Board was notified of this procedure and no subsequent adverse impacts to the water quality of the Elizabeth River were observed (Reference 58). Inspection of the chemical fire site during the IAS indicated that the site had been cleaned up (Reference 58).

B. Chemical Fire - Building SDA-215 (IAS Site 17)

According to the February 1983 IAS, a chemical fire occurred in cell 6 of Building SDA-215 on August 12, 1981 (Reference 58). The fire reportedly occurred as a result of incompatible chemical storage, predominantly of calcium hypochlorite and acids (Reference 58). Considerable site contamination reportedly resulted from the fire and the firefighting operation (Reference 58). The site was cleaned up by removing the remaining hazardous chemicals and residues and the contaminated soil adjacent to Building SDA-215 (Reference 58). These materials were contract hauled off-site to an EPA-approved hazardous waste disposal facility (Reference 58).

V. REFERENCES

1. Letter from Wallace Davis (VDAPC) to R.W. Eitel (NNB),
Re: Boiler Permits, February 16, 1990.
2. Letter from Cynthia Bailey (VDWM) to Francis Reardon
(Metcalf & Eddy), Re: Salvage Fuel Boiler Plant, December
28, 1989.
3. Memorandum from Steve Frazier (VDWM) to John Ely (VDWM),
Re: NNB Inspection of 9/21-22/89, December 18, 1989.
4. Letter from Steve Frazier (VDWM) to Cheryl Barnett (NNB),
Re: NNB RCRA Inspection of 9/21-22/89, December 11, 1989.
5. Letter from Wallace Davis (VDAPC) to R.W. Eitel (NNB),
Re: Boiler Permits, December 4, 1989.
6. Letter from Gerould McCoy (VDWM) to Kenneth Walker (NNB),
Re: Building V-60/V-90 Complex, November 20, 1989.
7. Letter from Steven Frazier (VDWM) to Steven Gibson (NNB),
Re: Extension to Part B Comments Response, March 17, 1989.
8. Letter from Karol Akers (VDWM) to Steven Gibson (NNB),
Re: Closure Plan for LF-68, January 11, 1989.
9. Letter from Karol Akers (VDWM) to Virginian Pilot,
Re: Public Announcement of Closure of LF-68,
January 11, 1989.
10. Letter from Carl Rodzewich (NUS) to Ben Mykijewycz (EPA),
Re: PA Deficiency/HRS, January 11, 1989.
11. Letter from Steven Frazier (VDWM) to Steven Gibson (NNB),
Re: Annual RCRA Inspection, December 14, 1988.
12. Letter from Karol Akers (VDWM) to S. Gibson (NNB),
Re: Part B Application Received, December 8, 1988.
13. RCRA Compliance Evaluation Inspection of NNB, Conducted by
EPA and VDWM on August 16, 1988.
14. Closure Plan for Hazardous Waste Storage Compound LF-68, NNB,
prepared for Naval Facilities Engineering Command by
Environmental and Safety Designs, Inc., October 31, 1988.
15. Part B Permit Application for Naval Station, prepared for
Naval Facilities Engineering Command by Environmental and
Safety Designs, Inc., October 31, 1988.

16. Letter from Sandra Morse (VDWM) to Steven Gibson (NNB),
Re: Enforcement Order, October 26, 1988.
17. Virginia Waste Management Board Enforcement Order, signed by
Cynthia Bailey (VDWM) and Steve Gibson (NNB), Notarized
March 11, 1989.
18. Letter from Harry Gregori (VDWM) to Commander NNB,
Re: Consortium of Hazardous Waste Facility Siting
Authorities Inspection, October 12, 1988.
19. Grading, Fence, and Closure Plan for CD Area Landfill at
Naval Station NNB, CEGG Partnership, October 1988.
20. RCRA Compliance Evaluation Inspection of NNB by EPA and VDWM,
August 16, 1988.
21. Letter from William Gilley (VDWM) to Virginian Pilot,
Legal Notice of Agreement between VDWM and NNB,
September 23, 1988.
22. List of Hazardous Waste Accumulation Areas, (Author not
identified), Received by Steve Frazier (VDWM) on
August 16, 1988.
23. "Notice of Partial Closure and Opportunity to Comment on
Closure Plan for NNB - DRMO Camp Allen", Virginian Pilot,
March 7, 1988.
24. State Air Pollution Control Board - Asbestos Project
Notification Requirements Form, B & H Sales Corporation,
Received by VDWM March 1, 1988.
25. Letter from Steven Gibson (NNB) to Karol Akers (VDWM),
Re: Norfolk Certification of Protective Filing Status,
February 10, 1988.
26. Letter from Karol Akers (VDWM) to Steven Gibson (NNB),
Re: Qualification of Interim Status, February 1, 1988.
27. Letter from Karol Akers (VDWM) to Steven Gibson (NNB),
Re: Interim Status, January 27, 1988.
28. Letter from William Gilley (VDWM) to Steven Gibson (NNB),
Re: Clarification of Deadline for Revised Part A Submittal,
November 9, 1987.
29. Letter from S. Gibson (NNB) to Bruce Smith (EPA),
Re: Information to Clarify Hazardous Waste Permit Status,
November 6, 1987.

30. Letter from S. Gibson (NNB) to Carol Akers (VDWM),
Re: Revised Part A Applications, November 18, 1987.
31. RCRA Compliance Evaluations Inspection Report for NNB, by EPA and VDWM, conducted June 29-30, 1987.
32. Memo to File from David Turner (EPA), Re: Salvage Fuel Boiler - Bldg. Z-309, September 21, 1987.
33. Letter from William Gilley (VDWM) to Commander (NNB),
Re: Hazardous Waste Management Violations Identified during June 29-30, 1987 Inspections, August 24, 1987.
34. Soil Survey of Norfolk County, Virginia, United States Department of Agriculture, May 1959
35. Record of Communication from Drew Lausch (EPA) to Christopher Thomas (EPA), Re: Drum Storage at NNB, June 29, 1987.
36. Letter from Cynthia Bailey (VDWM) to S. Gibson (NNB),
Re: Salvage Fuel Boiler Plant, January 16, 1987.
37. Hazardous Substance Release Report for Release of PCBs at Camp Allen Salvage Yard, Received December 18, 1986.
38. Letter from William Sarnecky (VDWM) to S. Gibson (NNB),
Re: Hazardous Waste Inspection Checklist, October 23, 1986.
39. Memorandum from George Houghton (EPA) to John Armstead (EPA),
Re: RCRA Inspection, September 30, 1986.
40. Checklists for RCRA Inspection of NNB, Conducted by EPA and VDWM on June 29-30, 1987.
41. EPA Notification of Hazardous Waste Activity for NNB, Signed February 4, 1986.
42. RCRA Compliance Evaluation Inspection Report for NNB,
Inspection Conducted by EPA and VDWM on August 12-13, 1986.
43. Letter from Stephen Wassersug (EPA) to Admiral Jackson Parker (NNB), Re: SWMU Information Request per HWSA Corrective Action, February 24, 1986.
44. Letter from Wladimir Gulevich (VDWM) to Paul Rakowski (Naval Station - NNB), Re: Revision to Waste Solvent Classification, February 13, 1986.
45. Letter from R. Jerns (NNB) to VDWM, Re: Notification of Hazardous Waste Activity for Burning and Marketing of Used Oil Fuel, February 12, 1986.

46. Memorandum from Commanding Officer (Navy Public Works - NNB) to Commander (NNB), Re: Notification of Burning of Used Oil Fuel, February 6, 1986.
47. [OPEN]
48. Letter from E. Siudyla (VWCB) to Harold Winer (VDWM), Re: Report to Discontinue Sampling at Norfolk Naval Magazine Area, October 31, 1985.
49. Letter from J. Bailey (NNB) to Wade Lanford (VDWM), Re: Revision to CY 1983 HW Report, October 25, 1985.
50. Letter from R. Zicafoose (NNB) to Harold Winer (VDWM), Re: Request to Discontinue Sampling at Norfolk Naval Magazine Area, October 17, 1985.
51. Letter from Wladimir Gulevich (VDWM) to R. Koch (NNB), Re: Designation of Hazardous Waste to Industrial Wastes, June 3, 1985.
52. Letter from J. Bailey (NNB) to Brad Rock (VDWM), Re: Confirmation Studies to be conducted under NACIP, March 28, 1985.
53. Transmittal Sheet from LANTDIV (NNB) to PWC (NNB), Re: VDWM Inspection of 9/26/84, March 5, 1985.
54. Letter from W. Lanford (VDWM) to Steve Breuer, (Naval Station - NNB), Re: Inspection Sheets for 9/26/84 and 12/26/84 Visits, February 25, 1985.
55. Survey Sheet from 9/26/84 Inspection, W. Lanford (VDWM), September 26, 1984.
56. NACIP Program Confirmation Study of the Fire Fighting School - Fleet Training Center Atlantic, Norfolk, Virginia, Prepared for Naval Facilities Engineering Command by Malcolm Pirnie, Inc., March 1984.
57. 1983 Generator's Annual Report, Commander Naval Station, M. Anderson (NNB), 1983.
58. Initial Assessment Study of Sewells Point Naval Complex, Norfolk, Virginia, Prepared for NACIP by Environmental Science and Engineering, Inc., February 1983.
59. EPA Potential Hazardous Waste Site Identification, Camp Allen Landfill, Prepared by Eric Johnson, July 15, 1982.

60. Letter from J. Bailey (Naval Facilities Engineering Command, Norfolk) to EPA, Re: Domestic Wastewater Sludge Analyses, May 24, 1982.
61. RCRA Part A Permit Application, Consolidation of All TSD Activities at NNB, March 15, 1982.
62. Letter from Shirley Bulkin (EPA) to Captain Herbig (NNB), Re: RCRA Interim Status Conditions, December 17, 1981.
63. RCRA Inspection Checklist, W. Lanford (VDWM), September 11, 1981.
64. EPA Notification of Hazardous Waste Site, Camp Allen Salvage Yard, Signed by R. Lines (Naval Station - NNB), June 5, 1981.
65. EPA Notification of Hazardous Waste Site, Camp Allen Landfill, signed by R. Lines (Naval Station - NNB), June 5, 1981.
66. Letter from EPA to Paul Rakowski (NNB), Re: Acknowledgement of Application for a Hazardous Waste Permit, January 14, 1981.
67. General Development Map, Existing Conditions, Sector 6, Sewells Point Area Navy Complex, Revised July 1, 1981.
68. General Development Map, Existing Conditions, Sector 14, Sewells Point Area Navy Complex, Revised July 1, 1981.
69. Index Map, Stewells Point Area Navy Complex, August 1, 1981.
70. EPA Region III Hazardous Waste Permit Application Summary, November 19, 1980.
71. Letter from J. Dempsey (Naval Facilities Engineering Command, Norfolk) to EPA, Re: Consolidated Permit Applications, November 19, 1980.
72. Memorandum from Commander (Naval Facilities Engineering Command) to Commanding Officer (Naval Air Rework Facility-NNB), Re: Final Closure of Naval Magazine Industrial Waste Disposal Staging Area, November 3, 1980.
73. RCRA Part A Permit Application for DPDO Annex and Camp Allen Landfill, November 18, 1980.
74. RCRA Part A Permit Application for Public Works Center - Norfolk, November 18, 1980.

75. RCRA Part A Permit Application for Commander Naval Base, Norfolk, November 18, 1980.
76. Norfolk North Quadrangle, U.S.G.S. Topographic Map, Photo-revised 1986.
77. RCRA Part A Permit Application for Naval Air Rework Facility, Norfolk, November 18, 1980.
78. EPA Notification of Hazardous Waste Activity, NNB, August 15, 1980.
79. Letter from Andres Talts (Naval Facilities Engineering Command, Norfolk), Re: Hazardous Waste Notifications, August 18, 1980.
80. Status Report Camp Allen Landfill/Salvage Yard Area, Leachate Control, Prepared by Naval Facilities Engineering Command (no date.)

Attachment A
Partial List of Tenant Activities
(Reference 58)

LIST OF RESIDENT ACTIVITIES
NAVAL AIR STATION (NAS)
NORFOLK, VA.

1. Aircraft Ferry Squadron THIRTY ONE
Bldgs. SP-65, SP-122
2. ARINC Research Corporation
Bldg. U-48
3. Atlantic Fleet Audio Visual Command
Bldg. V-64
4. Atlantic Fleet Band
Bldg. SP-70
5. Aviation Material Office, Atlantic
Bldg. T-26
6. Breezy Point Kindergarten NAS
Bldg. SP-129
7. Bureau of Customs
Bldg. R-48
8. Carrier Airborne Early Warning Wing 12
Bldg. SP-65
9. Carrier Airborne Early Warning Squadron 78
Hangar LP-12
10. Carrier Airborne Early Warning Training Squadron 120
Hangars SP-2, SP-232
11. Carrier Airborne Early Warning Squadron 121
Hangar SP-1
12. Carrier Airborne Early Warning Squadron 122
Hangar SP-1
13. Carrier Airborne Early Warning Squadron 123
14. Carrier Airborne Early Warning Squadron 124
15. Carrier Airborne Early Warning Squadron 125

16. Carrier Airborne Early Warning Squadron 126
Hangar SP-1
17. Commander Carrier Group FOUR--Deployed
18. Commander Carrier Group EIGHT--Deployed
19. Commander Reserve Patrol Wing Atlantic
Bldg. LP-74
20. Defense Mapping Agency, Norfolk Office
Bldg. SP-238
21. Douglas Aircraft Company
Bldgs. SP-86, SP-31
22. Embry Riddle Aeronautical University
Hangar LP-14
23. Fleet Aviation Specialized Operational Training Group, Atlantic
Fleet
Bldgs. SP-257, 254, 362, 366, 120
24. Fleet Composite Squadron SIX
Bldgs. U-48, 58, 102
25. Fleet Electronic Warfare Support Group
Bldg. SP-71
26. Fleet Logistics Support Squadron FORTY
Hangar SP-2
27. Fleet Logistics Support Squadron FIFTY SIX
Hangar SP-31
28. Fleet Tactical Support Wing ONE
Bldg. SP-65
29. Fleet Technical Support Center
Bldg. R-47
30. Grumman Aerospace Corporation
Bldg. SP-373
31. Helicopter Anti Submarine Squadron Light THIRTY
Hangars LF-60, SP-234, U-48, LF-62
32. Helicopter Anti Submarine Squadron Light THIRTY TWO
Hangar LP-13

33. Helicopter Anti Submarine Squadron Light THIRTY FOUR
Hangar LP-13
34. Helicopter Attack Squadron Light FOUR
Hangar LP-12
35. Helicopter Combat Support Squadron SIX
Hangar LP-4
36. Helicopter Mine Countermeasures Squadron 12
Hangar SP-31
37. Helicopter Mine Countermeasures Squadron 14
Hangar LP-3
38. Helicopter Mine Countermeasures Squadron 16
Hangar LP-3
39. Helicopter Sea Control Wing ONE
Hangar LP-2
40. Lockheed Aircraft Corporation
Bldgs. T-26, S-3
41. Marine Aircraft Group Detachment 46 ALFA
Hangar LP-2
42. Marine Barracks
Bldg. MB-28
43. McDonnell - Douglas Corporation
Bldg. S-29
44. Military Air Traffic Coordination Office
Bldg. LP-84
45. NAS Cooperative Association
Bldgs. V-60, LF-18, U-132, V-53, V-88
46. NAS Employees Recreation and Welfare League
47. NAS Little League
48. NAS Mutual Aid Association
49. Naval Air Force Atlantic Fleet
Bldgs. T-26, S-3, R-46, 47
50. Naval Air Maintenance Training Group Detachment
Bldgs. SP-256, 254, 232

51. Naval Air Norfolk Federal Credit Union
Bldgs. U-20, V-60
52. Naval Air Reserve Unit
Hangar LP-12
53. Naval Air Rework Facility
Bldg. V-28, et al.
54. Naval Air Technical Services Facility, Quality Assurance Division,
Atlantic
Bldg. R-48
55. Naval Air Technical Training Center, Lakehurst Detachment
Bldg. U-46
56. Naval Audit Site
Bldg. V-53
57. Naval Aviation Engineering Service Unit, Atlantic
Bldg. S-3
58. Naval Aviation Logistic Center DET EAST NAS NORVA
Bldg. R-48
59. Naval Communication Area Master Station Atlantic
Bldgs. N-26 (NAS R-56, SP-65)
60. Naval Construction Battalion Unit 411
Bldg. LAG-11
61. Naval Eastern Oceanography Center, Norfolk
Bldg. U-117

Mobile Environmental Team Atlantic
Bldg. U-117
62. Naval Investigative Service Resident Agency Norfolk
Bldg. U-40
63. Naval Maintenance and Supply Systems Office
Bldgs. R-51, 52, 50
64. Naval Regional Dental Center
Bldg. CD-4, Trailer (SP area)
65. Naval Regional Medical Center

Naval Aviation Physiology Training Program
Bldg. S-33

Naval Aviation Water Survival Training Program
Bldg. U-40

Naval Laboratory Services, Toxicology Branch Laboratory
Bldg. S-33

Regional Medical Branch Clinic
Bldg. V-9

Audio Testing Center
Bldg. V-28

- 66. Naval Safety Center
Bldgs. SP-49, 50, 52
- 67. Naval Sea Cadets Corps
Bldg. SP-64
- 68. Naval Station
Bldgs. U-115, 40, SP-46, SP-53, SP-314
- 69. Naval Supply Center
Bldgs. LP-84, 100, 205

SER Wholesale/Retail Function
Bldgs. LP-26, SP-86, 87, 236, 237, 359, V-29, 52, 60
- 70. Naval Telecommunication Center Breezy Point
Bldg. SP-65
- 71. Naval Training Equipment Center Representative Atlantic, Field
Engineer Office
Bldg. SP-17
- 72. Navy Courier Service Detachment VICTOR
Bldg. LP-82
- 73. Navy Exchange (COMNAVBASE NX)
Bldgs. U-40, V-57, LP-1, LP-84
- 74. Navy Material Transportation Office
Bldg. X-133 (QUICKTRANS LP-117)
- 75. Navy Publication and Printing Service Detachment Office,
Reprographics Facility
Bldg. V-28
- 76. Navy Regional Data Automation Center
Bldg. V-53
- 77. Navy Wives Club of America
Bldg. SP-70
- 78. Personnel Support Detachment, NAS Norfolk
Bldg. S-29

- 79. Public Works Center
Bldg. V-49--Repair Shop
Bldg. NM-59A--Storage
- 80. Resident Officer in Charge of Construction, Sewells Point Area
Bldg. U-46
- 81. SERV-AIR Incorporated
Bldg. SP-86
- 82. Shore Intermediate Maintenance Activity, Portsmouth
Bldg. V-58, V-36
- 83. Tactical Electronic Warfare Squadron 209
Hangar LP-12
- 84. United Virginia/Seaboard National Bank
Bldg. U-20
- 85. U.S. Post Office
Bldg. U-20
- 86. Virginia Commission for the Visually Handicapped
Bldg. R-46 (Cafeteria)

Source: NAS, 1981.

TENANT ACTIVITIES OF THE NAVAL STATION, NORFOLK (NAVSTA NORFOLK)

Tenant Activities

Personnel Support Activity, Norfolk

Personnel Support Activity Branch Office, Naval Station

Navy Publications and Printing Service Office

Mobile Technical Unit TWO

Atlantic Division, Naval Facilities Engineering Command

Post Office (Hampton Roads Branch)

Office of Civilian Personnel, Southern Field Division

Naval Investigative Service Office, Norfolk

Commander Naval Surface Force Atlantic, Readiness Support Group

Director, Fleet Home Town News Center

Naval Legal Service Office

Naval Communication Area Master Station, Atlantic

Navy Environmental Health Center

Fleet Training Center

Atlantic Representative, Chief of Naval Reserve

Fleet Accounting and Disbursing Center, U.S. Atlantic Fleet

Human Resource Management Center

Nuclear Weapons Training Group, Atlantic

Naval Surface Weapons Center Detachment Fort Monroe, Fort Story

Naval Regional Dental Center

TENANT ACTIVITIES OF THE NAVAL STATION, NORFOLK (NAVSTA NORFOLK)
(Continued, Page 2 of 3)

Tenant Activities (continued)

Navy Manpower and Material Analysis Center, Atlantic

Naval Alcohol Rehabilitation Center

Navy Public Works Center (Telephone Exchange, Public Works Shop,
Janitorial Storage)

Naval Air Station (Enlisted Club, Petty Officer's Club, Officer's Mess,
Package Store)

Shore Intermediate Maintenance Activity, Norfolk

Navy Public Affairs Center, Atlantic

Naval Ship Engineering Center, Norfolk Division

Naval Weapons Station, Yorktown (Bldg. CA-495)

Naval Security Group Activity, Northwest (Bldg. CEP-113)

Navy Youth Programs Manager, Area FIVE

TIDEWATER Judicial Circuit, Navy-Marine Corps Trail Judiciary

Naval Sea Support Center, Atlantic (CEP-117, SC-413, X-18, Collimation
Tower)

Naval Regional Medical Center, Sewells Point Branch Clinic

Commander in Chief U.S. Atlantic Fleet (Boathouse)

Commander Operational Test and Evaluation Force (Bldg. CA-99)

Atlantic Fleet Headquarters Support Activity (Bldg. CA-14)

Supervisor, Shipbuilding, Conversion and Repair, Portsmouth (Bldg. W-7)

Marine Barracks, Norfolk (Gate Sentry)

TENANT ACTIVITIES OF THE NAVAL STATION, NORFOLK (NAVSTA NORFOLK)
(Continued, Page 3 of 3)

Non-Federal Activities

American Red Cross

Navy Relief Society

COMFIVE Federal Credit Union

Tidewater Consortium

Golden Gate University

Source: COMNAVBASE NORFOLK, 1978.

TENANT ACTIVITIES OF THE
NAVAL SUPPLY CENTER, NORFOLK (NSC NORFOLK)

American Federation of Government Employees
Defense Property Disposal Office
Fitting Out Supply Assistance Team
Fleet Accounting and Dispursing Center, U.S. Atlantic Fleet
International Association of Machinists and Aerospace Workers
Military Sealift Command
Naval Electronics Systems Command Material Representative
Naval Investigative Service Resident Agent
Naval Supply Occupational Safety and Health Group, Norfolk
Naval Telecommunications Center
Navy Audit Service, Southeast Region
Navy Food Management Team
Navy Material Transportation Office
Navy Publications and Printing Service Center
Navy Regional Medical Center Branch Clinic
Navy Resale System Field Support Office
NSC Cafeteria
NSC Federal Credit Union
Precious Metals Area Representative (DLA)
Ships Force Overhaul Management Branch
Supply Systems Security Group-Norfolk
U.S. Customs Service, Department of Treasury
U.S. Army Veterinary Activity, Norfolk Branch

Source: NSC NORFOLK, 1981b.

TENANT ACTIVITIES OF THE
U.S. ATLANTIC FLEET HEADQUARTERS SUPPORT ACTIVITY
(LANTFLT HEDSUPPACT)

Commander-in-Chief, U.S. Atlantic Fleet
Supreme Allied Commander, Atlantic (NATO)
Fleet Intelligence Center Europe and Atlantic
Oceanographic Systems, Atlantic
Atlantic Command Operations Support Facility
Personnel Support Activity Detachment
Commander, Submarine Force, U.S. Atlantic Fleet
Commander, Naval Surface Force, U.S. Atlantic Fleet
Atlantic Command Electronic Intelligence Center

Source: COMNAVBASE NORFOLK, 1982.

the site, although it is absent in some areas as shown in the cross section on Figure II-2. The Sand Bridge and Norfolk Formations have a combined thickness of 60 feet. The upper 20 to 40 feet consist of unconsolidated fine sands and silts with low to moderate permeabilities, and the lower 20 to 40 feet consist of relatively impermeable silt, clay, and sandy clay. The Yorktown Formation underlies the Sand Bridge and Norfolk Formations. It consists of moderately consolidated glauconitic sand, clay, and shell beds (Reference 58).

The uppermost aquifer is located is located in the upper 20 to 40 feet of the Sand Bridge and Norfolk Formations. The aquifer is reportedly thin, and the water-bearing strata are discontinuous. The depth to the water table is usually less than eight feet. Well yields are reportedly low, but adequate for domestic and small industrial use. It is used extensively for lawn watering in nearby residential areas (Reference 58). Flow in the uppermost aquifer is slow due to the level topography and the low to moderate permeability of the sediments. The aquifer discharges to Mason Creek, Elizabeth River, and James River (at Willoughby Bay) (Reference 58).

According to the 1983 IAS, a deeper "confined" aquifer is located in the Yorktown Formation. The lower 20 to 40 feet of the relatively impermeable silt, clay, and sandy clay of Sand Bridge and Norfolk Formations reportedly serve as an aquiclude. However, these confining beds may be absent in some areas of the site. This condition exists in the Camp Allen area, most likely due to the presence of a former channel of Boush Creek that cuts through the confining beds. In this area, contamination of the uppermost aquifer could result in pollutant migration to the deeper Yorktown Aquifer (Reference 58). Figure II-4 provides the locations of wells at NNB. Four nonpotable water supply wells

used for lawn watering and vehicle washing are located at NNB. The depth of these wells range from 85 to 110 feet and draw water mainly from the uppermost aquifer. Two wells located west of NNB reportedly provide about 100,000 gallons per day of process (cooling) water for a manufacturer (Reference 58). Seven monitoring wells are located in and around the former Camp Allen Landfill (IAS Site 1) (SWMU 1). These wells have periodically been used to collect ground water samples since 1974 (Reference 58).

Attachment B

Hazardous Wastes Generated at Norfolk Naval Base
Identified in the October 1988
RCRA Part B Permit Application (Reference 15)

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
1.	Acetaldehyde	U001	I
2.	Acetic acid	D002	C
3.	Acetic acid glacial	D002	C
4.	Acetone	F003/U002	I
5.	Adhesives and cements	D001	I
6.	Alcohol, acetone mixture	D001/F003	I
7.	Alkaline permanganate cleaning Solution	D001/D002/ D006/D007	I, C, E
8.	Alodine	D002/D007	C, E
9.	Alpha-Napthylamine	U167	T
10.	Ammonium hydroxide	D002	C
11.	Aniline	U012	I, T
12.	Arsenic	D004	E
13.	Arsenic trioxide	P012	H
14.	Barium cyanide	P013	H
15.	Batteries and battery acid	D002/D008	C, E
16.	Batteries, lithium	D003	R
17.	Baygon	D001	I
18.	2H-1-Benzopyran-2-one, 4-hydroxy- 3-(3-oxo-1-phenylbutyl)-, & salts	P001	H

HAZARDOUS WASTES
at
NAVAL BASE NORFOLK

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
19.	Benzene	U019	I, T
20.	Beryllium dust	P015	H
21.	Bituminous coating solution	D001	I
22.	Blasting medium (glass beads, rice hulls)	D006/D007 D008	E
23.	Boiler cleaning waste	D009	E
24.	Butyl acetate technical	D001	I
25.	1-Butanol	U031	I
26.	Cadmium batteries	D006	E
27.	Calibration fluid	D001	I
28.	Calcium hypochlorite	D001	I
29.	Cannisters (OBA)	D001	I
30.	Carbamic acid, ethyl ester	U238	T
31.	Carbon disulfide	P022	H
32.	Carbon removing compound	F002/F004/ D006/D007	T, E
33.	Chloral	U034	T
34.	Chlordane	U036	T
35.	Chloroform	U044	T
36.	Chromic acid (alodine)	D002/D007	C, E
37.	Citric acid	D002	C

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
38.	Cleaning compound	D002/D006/ D007	C, E
39.	Cleaning solvents, mixed (nonchlorinated)	D001/F003 F005	I, T
40.	Cleaning solvents, mixed (chlorinated)	F001/F002	T
41.	Coolant - machine shop	D006/D007	E
42.	Copper cyanide	P029	H
43.	Corrosion prevention compound	D001/D002	I, C
44.	Cresol cleaning solution	F004/D002	T, C
45.	Cresols	U052	T
46.	Cresote	U051	T
47.	Cyanides	P030	H
48.	Cyanide solution (metal processing)	D003	R, T
49.	o-Dichlorobenzene	U070	T
50.	p-Dichlorobenzene	U072	T
51.	DDT	U061	T
52.	Developers and fixers	D011	E
53.	Dichloroethyl ether	U025	T
54.	Dichlorodifluoromethane	U075	T
55.	Dichloromethane	F001/U080	T

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
56.	Dieldrin pesticide	P037	H
57.	Dimethyl phthalate	U102	T
58.	1,4-Dioxane	U108	T
59.	2,4-Dinitrotoluene	U105	T
60.	Di-n-octyl phthalate	U107	T
61.	Dry cleaning solvent (PD-680)	D001	I
62.	Electrolyte - sulfuric acid	D002	C
63.	Endrin	P051	H
64.	Ethyl acetate	F003	I
65.	Ethyl ether	U117	I
66.	Ethylene oxide	U115	I, T
67.	Ferric chloride	D002	C
68.	Fire fighting waste	D001/D002/ D005	I, C, E
69.	Flourescein	D002	C
70.	Formaldehyde	U122	T
71.	Formic acid	D002	C
72.	Freon (trichlorotrifluoroethane, trichloromonofluoroethane)	F002	T
73.	Fuel (contaminated JP-5, gasoline)	D001	I
74.	Fuel and PCB's	D001	I

HAZARDOUS WASTES
at
NAVAL BASE NORFOLK

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
75.	Heptane	D001	I
76.	Hydrazine solution	D002/U133	C, R T
77.	Hydrofluoric acid, nitric acid	D002/U134	C, T
78.	Hypochlorite solution	D002	C
79.	Isobutyl alcohol	U140	I, T
80.	Isopropyl alcohol	D001	I
81.	Lead (spent bullets)	D008	E
82.	Lead Dross	D008	E
83.	Lens grinding waste	D006/D007/ D008	E
84.	Lindane	U129	T
85.	Lithium hydroxide	D002	C
86.	MC-1000 chemical treatment (formaldehyde)	D002/U122	C, T
87.	Mercury, metallic	D009	E
88.	Mercury cell batteries	D009	E
89.	Mercury instruments	U151	T
90.	Mercuric nitrate (boiler treatment)	D001/D009	I, E
91.	Metal preservative (cosmoline and barium)	D005	E
92.	Methanol	U154	I

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
93.	4,4'-Methylene-bis- (2-chloroaniline)	U158	T
94.	Methylene chloride	F001	T
95.	Methylene chloride	F002	T
96.	Methyl ethyl ketone	F005/U159	I, T
97.	Methyl ethyl ketone peroxide	U160	R, T
98.	Methyl isobutyl ketone	U161	I
99.	4-Methyl-2-pentanone	U161	I
100.	Mineral spirits	D001	I
101.	Monoethanolamine	D002	C
102.	Naphtha	D001	I
103.	1-Naphthylamine	U167	T
104.	Nickel cadmium batteries	D006	E
105.	Nicotene and salts	P075	H
106.	Nitric acid (plating shop)	D002/D006	C, E
107.	N-Nitro-N-ethylurea	U176	T
108.	Oxalic acid	D002	C
109.	Paint remover wastes	D002/F001/ F004/D006/ D007/D008	C, T, E
110.	Paint wastes	D001/D007/ D008	I, E,

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
111.	Paraldehyde	U182	T
112.	Penetone 423 (also contains cresol, methylene chloride, trichloroethylene)	F002/F004	T
113.	Pentachlorophenol	F027	H
114.	Perchloric acid	D001/D002	I, C
115.	Perchloroethylene (tetrachloroethylene)	F002	T
116.	Petroleum distillate	D001	I
117.	Phenol	U188	T
118.	Phenol and aniline oil	U188/U012	I, T
119.	Phosphoric acid	D002/D006/ D007	C, E
120.	Pit sludge	F001/D006/ D007/D008	T, E
121.	Plastisol	D005/D006	E
122.	Plating sludges	F008	T
123.	Plating shop wastes	D002/D006/ D007/D008	C, E
124.	Plating bath (cyanide)	F007	R, T
125.	Plating cleaning and stripping baths	F009	R, T
126.	Potassium cyanide	P098	H

**HAZARDOUS WASTES
at
NAVAL BASE NORFOLK**

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
127.	Potassium dichromate	D007	E
128.	Potassium hydroxide	D002	C
129.	Potassium nitrate	D001	I
130.	Potassium permanganate cleaning solution	D001/D002/ D006/D007/ D008	I, C, E
131.	Potassium silver cyanide	P099	H
132.	Potassium silver nitrate	D011	T
133.	Pyridine	U196	T
134.	Resorcinol	U201	T
135.	Rust removing compound (sodium hydroxide solution)	D002/D006/ D007/D008	C, E
136.	Selenious acid	U204	T
137.	Selenium	D010	E
138.	Silver	D011	E
139.	Silver cyanide	P104	H
140.	Sodium dichromate solution	D007	E
141.	Sodium nitrate	D001	I
142.	Sodium nitrite	D001	I
143.	Spent carbon, cadmium (from IWTP)	D006	E
144.	Stoddard solvent	D001	I

HAZARDOUS WASTES
at
NAVAL BASE NORFOLK

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
145.	Sulfamic acid	D002	C
146.	Sulfuric acid (spent)	D002/D006/ D007/D008	C, E
147.	Tetrachloroethylene	U210	T
148.	Tetrahydrofuran	U213	I
149.	Thioacetamide	U218	T
150.	Thiourea	U219	T
151.	Toluene	F005/U220	I, T
152.	Toluenediamine	U221	T
153.	Toluene diisocyanate	U223	R, T
154.	1,1,1-Trichloroethane	F001	T
155.	1,1,1-Trichloroethane	F002	T
156.	1,1,1-Trichloroethane	U226	T
157.	Trichloroethylene	F001/U228	T
158.	Trichlorofluoromethane	U121	T
159.	Trisodium phosphate	D002	C
160.	Vinyl chloride	U043	T
161.	Warfarin, mercuric chloride	D002/D008/ D009/U248	C, E, T
162.	Wastewater treatment sludges	F006/F019	T
163.	Xylene	F003/U239	I

HAZARDOUS WASTES
at
NAVAL BASE NORFOLK

<u>LINE NUMBER*</u>	<u>WASTE DESCRIPTION</u>	<u>WASTE NUMBER</u>	<u>WASTE CODE</u>
164.	Zinc cyanide	P121	T
165.	Zinc phosphide	P122	R, T

*Line Number refers to the line number on the Part A application.